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ORIGINAL ARTICLES.

DELIRIUM TREMENS.

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"A rigor and delirium from excessive drinking are bad."—*Aphorisms of Hippocrates.*

THE tendency at present is to underrate the importance and gravity of delirium tremens. We are warned against the old-fashioned free use of sedatives: "Feed your patient and he will get well;" "When he is exhausted, he will fall asleep anyway." Such advice is often heard. The descriptions of delirium tremens to be found in the text-books are very meager and they frequently entirely omit many of the important phenomena of the disease. Monographs describe many different forms, and are often confusing. This confusion, and indeed many of the current ideas as to the prognosis and treatment of this disease depend upon a very misleading conception, which is, that "delirium tremens is really only an incident in the history of chronic alcoholism." (Osler.) This is true, but the same might be said of cirrhosis of the liver. Delirium tremens is as much a specific disease as cirrhosis of the liver is; but the breadth of the idea that it is "only an incident" hides this important fact, and consequently many of our conceptions of this dangerous disease are founded on the observation of comparatively mild pathologic conditions. The aim of this paper is to give to delirium tremens its true importance as a disease.

The clinical observations to be used here were made during an eighteen months' service as externe and interne at the Cincinnati City Hospital. A great many cases of all grades of alcoholism are continually received at this institution, and while an effort is made to exclude simple "drunks," the policy of the receiving physician is always to err on the side of safety. So it is that many cases are received that otherwise would not be. It is extremely difficult to estimate the extent of a drunken man's illness. Alcoholism, in all its minor forms, is associated with an hysterical condition that is hard to recognize. A man is rarely so drunk as he pretends to be. When a man is suddenly sobered by some necessity, it is simply this hysterical condition that has disappeared. However, it must be remembered that nothing else so completely disguises other disease as does alcoholism. A very severe injury may be hidden under drunkenness. All the symptoms of pneumonia disappear before a concomitant delirium tremens.

During the eighteen months that I served at the City Hospital, 360 cases of alcoholism were received. Of these, 132 had delirium tremens. Many cases were under my care, or at least where I had opportunities of observing them. Others I did not see, but I obtained my knowledge of them from the clinical records. Every possible precaution was taken to insure accuracy. However, certain errors were hardly to be avoided. Probably the 360 cases of alcoholism contained more than 132 cases of delirium tremens. The cases overlooked were probably abortive cases. The inclusion of these cases (could they have been positively identified) would have reduced the death-rate given. This error is probably not very great, and is perhaps the only one that could have occurred in compiling the statistics.

ETIOLOGY.—Sometimes a man goes directly from drunkenness into delirium tremens, but more frequently the disease makes its appearance as he begins to sober up. Anstie says that the first symptom is a distaste for alcohol. I have not noticed that. The disease often begins one, two, or three days after the individual has ceased drinking. This accounts for the erroneous opinion once held that the disease was due to a withdrawal of the accustomed stimulant. No single drinking bout ever produces delirium tremens. It may cause death by alcoholic poisoning, but not by delirium tremens. It is the chronic drinker who develops this disease, and he may develop it without having ever been drunk. Usually, if not always, there is an exciting cause aside from alcoholism. Näcke lays great stress on this. By all odds the most frequent exciting cause is exposure to inclement weather. How severe this exposure frequently is can only be appreciated by one who has engaged in public practice among the lower and criminal classes. An accident may be the exciting cause. An habitual drinker, drunk or sober, is injured (perhaps a leg has been amputated), and the case goes on well for thirty-six or forty-eight hours, when the patient becomes nervous, sleepless, has hallucinations, and runs into delirium tremens that will be almost certainly fatal. A similar result may follow a simple fracture or any slight injury. Probably the majority of cases of surgical delirium are cases of delirium

tremens. The delirium tremens may come on in the course of a pneumonia. Other acute diseases sometimes act as exciting causes.

SYMPTOMATOLOGY.—In describing the symptomatology of delirium tremens, it has been found convenient to divide its clinical history into three stages. This division must of necessity be somewhat artificial, and it must not be expected that every case will present the stages in a typical form, especially as recovery may take place at any time in the first, second, or third stage, and death in either the second or the third.

Incipient stage. As the disease makes its appearance the subject becomes restless and does not sleep well. If he falls asleep, his sleep is haunted by dreams that soon awaken him. The minute he closes his eyes hallucinations pass before his mental vision. During this stage he is rational and *fully appreciates the character of the disease that is approaching.* He now truly has the "horrors." He may be tremulous, but usually he has only the slight tremor that follows every debauch. This is not nearly so pronounced as the true tremor of delirium tremens. At any moment he may become wildly delirious and, losing the mental control he still has, pass rapidly into the violent stage, becoming dangerous to himself and others. In the incipient stage the patient also exhibits the usual gastric symptoms that follow ordinary alcoholic intoxication.

The incipient stage may last one or two days, to be followed by the violent stage or by gradual recovery. First attacks rarely go beyond this stage. Probably fully half of the cases of delirium tremens that recover do so at this time. At the City Hospital such cases were called *impending delirium tremens.* These are the cases that Näcke calls *abortive delirium tremens.*

Violent stage. The violent stage begins with the true delirium. Sometimes it is ushered in with a violent epileptiform convulsion. Epilepsy in connection with delirium tremens has often been described, and, of course, delirium tremens may occur in an epileptic; but delirium tremens does not cause epilepsy, whatever hereditary alcoholism may have to do with it.

Convulsions were rarely seen at the City Hospital, although occasionally a patient in the violent stage would be received with a history of having had a convulsion. The convulsion may be exactly like that of epilepsy, with the exception, perhaps, of not having the cry. However, it is not epileptic, but should rather be called epileptiform. The patient may recover from a convulsion and be but very slightly delirious. Soon, however, the delirium increases. Krukenberg considers the convulsion "as an initial symptom of the delirium itself." Moeli states that the epileptic attack increases the gravity of the prognosis.

Rapidly, but perhaps by inappreciable degrees, the visions that the sufferer knew did not exist, become realities to him. The patient starts suddenly, turns his head, listens, or looks about him suspiciously. He may still appear rational and deny having hallucinations, probably because he even looks upon his attendants with suspicion. He becomes violent, struggles to free himself from imaginary foes, and perhaps screams at the top of his voice. Hallucinations, illusions, and delusions, often, but not necessarily, of a persecutory nature, crowd upon his mind. Illusions are now much more frequent than hallucinations. These may be of sight, hearing, or smell. Those of sight are most common, and are probably often connected with changes in the retina and optic nerve. A patient will often be seen going through some definite motion, as if at his work. His hands may move as if he were unravelling some endless skein. I have seen a printer go through the motions of setting type. Sleep is almost impossible.

The tremor is very pronounced. It is quite different from the slight tremor of all drinkers, which is easily controlled by the use of whiskey. The true delirium-tremens tremor is much greater; it is increased by an effort to use the muscles. In severe cases, especially when temperature is elevated, the tremor persists even during sleep. It usually begins in the tongue and upper extremities, and finally also affects the legs. It is most marked in the hands.

The patient, on account of the mental condition, feels no pain from the most severe injury. He throws a broken leg about as if it were sound. The symptoms of a pneumonia are completely masked. There is anorexia, but vomiting is very rare. Constipation is the rule. The temperature is variable. There may be very little fever or the temperature may run up to 104°, or higher, without pneumonia or other complication to account for it. The patient often sweats profusely. The urine is scanty, high colored, and usually contains some albumin. At this time the patient may rapidly wear himself out and die. This is usual in cases with severe injuries or pneumonia. The disease may run a comparitively mild course throughout this stage. The great excitement, however, is not of long duration, rarely lasting longer than three or four days; but at the end of this period the exhaustion does not always lead to natural sleep, as many clinicians would have us believe; it often leads to a peculiar typhoid state presently to be described.

After the violent stage is well developed the prognosis becomes grave. Death may take place very rapidly, the entire disease having lasted perhaps but

two days. Pneumonic and surgical cases usually die in this stage; so also do the febrile cases of Magnan. One fatal case (complicated with simple fracture of the tibia) that corresponded to the description of Magnan was observed.

Typhoid stage. The patient gradually passes from the previous condition into this state. But while this stage not infrequently follows a very violent second stage, it more often occurs in cases that from the beginning have had a more quiet delirium, and, indeed, from the start, have had somewhat of a typhoid character, which became more marked as the disease developed. It is the patients that have been drinkers for years, and perhaps have had many mild attacks of delirium tremens, that exhibit this stage most perfectly.

As this stage develops, the delirium becomes quiet. The patient loses his fear of the hallucinations, nor indeed are hallucinations frequent, if they exist at all. Illusions, however, are very frequent early in this stage, and are not usually of a persecutory nature. The patient tugs at his shackles, and thinks he holds the reins of a team of horses. This illusion is very common. Illusions of hearing are frequent.

The typhoid state gradually deepens. The patient is extremely tremulous. He is never awake, and rarely asleep. He is easy to control, but needs constant watching, just as a case of dementia would. He may get up and wander aimlessly about. His speech becomes more and more of a mumble, and finally entirely unintelligible. When sharply told to put out his tongue he protrudes it slowly. He passes urine and feces in bed or anywhere. Albuminuria is usual. The pulse is weak and rapid. There is always some elevation of temperature, although it rarely rises above 102°, until the end. Cheyne-Stokes breathing is occasionally observed. The conjunctivæ are injected, the eyes watery, and the eyelashes frequently glued together. The pupils are normal, or react slowly.

The patient lies with his mouth open, his tongue and lips dry, and his breath extremely fetid. One of the cases observed developed a parotiditis, probably by infection through the ducts from this foul mouth. The patient usually takes sufficient food. The bowels are constipated.

The subject lies in this condition for six or eight weeks, or even longer. He gradually grows weaker. One day his temperarure runs higher than usual, reaches 104° or 105°, or even higher (in one case 108.2°), and he then dies.

A small proportion of cases recover, even at this stage of the disease. The great majority die. This sequel to the violent stage of delirium tremens, for all that it is hardly mentioned in the literature, is by no means rare. At the City Hospital it was often called alcoholic meningitis. Leptomeningitis undoubtedly does occur with alcoholism as an important etiologic factor, but when it occurs it presents more definite signs of meningeal inflammation. Paralysis of the third nerve occurred in one alcoholic case in which undoubted meningitis was proved at the necropsy.

Näcke describes a type of chronic delirium tremens which coresponds to this typhoid stage. He uses the term typhoid in describing it. The *chronic continued delirium tremens* of Rose may be the same. However, many of the chronic forms that have been described seem to be rather cases of true insanity. The descriptions of these forms are often unsatisfactory.

DIAGNOSIS.—Usually the diagnosis presents no difficulties. The conditions to be excluded are: acute alcoholic intoxication, psychoses made prominent by drink, alcoholic insanity, delirium of infectious diseases, and mania.

The diagnosis of the third stage may be difficult if a previous violent stage has not been prominent, or has perhaps not been observed. In making a diagnosis of delirium tremens in the early stages, it is well to remember that it is the rule for a man to have a rational period between an intoxication and the true disease. It is sometimes necessary to watch a case a few days to exclude alcoholic insanity. The tremor has diagnostic importance, but a slight tremor is usual in all forms of alcoholism.

PROGNOSIS.—Statistics show a mortality of from 2 per cent. to 35 per cent. Probably this variation depends, to some extent, upon what is included as delirium tremens by the various observers.

Of the 132 cases, 2 (while in the typhoid state) were removed by friends. The result in these cases is unknown. The total mortality of the 130 cases was 35.4 per cent. Of 12 cases complicated by pneumonia, 10 died. Of 9 cases complicated by surgical injuries, in only one was the injury a dangerous one of itself. The other injuries were simple fractures (usually of the tibia, or above the ankle), crushed toe, fractured lower jaw, and scalp-wound. Only 2 recovered (the scalp-wound and jaw cases); 6 died in the violent stage, and 1 at the end of a long typhoid stage.

Of the 109 uncomplicated cases, 29 died, *i. e.*, 26.6 per cent. Of the 29 deaths, 20 occurred at the end of the typhoid stage, and 9 during the violent stage. Of the 80 recoveries, 33 took place during the incipient stage, or, in other words, were abortive cases; 7 recovered after the typhoid stage, and forty recovered after the violent stage had commenced, and without going into the typhoid stage. Many of these 40 cases were very mild.

PATHOLOGY.—The question as to the pathology of this strange disease is not an easy one to answer.

Autopsies, however, make some suggestions. When death occurs after the typhoid stage, the post-mortem examination shows a wet brain—in fact, a very wet brain. There is serum everywhere, in the ventricles and between the membranes. The arachnoid is so water-logged as to appear gelatinous; it may be faintly cloudy, but it is never opaque. The vessels of the pia are dilated. The brain has a wet, glistening appearance, identical with that of the *wet brain of nephritis*. This condition has often been mistaken for leptomeningitis. It is not a meningitis at all. The difference between an inflammation and an edema need not be discussed here.

In the cases that die during the violent stage, the arachnoid has not so much of a gelatinous appearance, as if, perhaps, the edema were not of so long a standing.

The lungs are also edematous, and especially marked in cases dying after the typhoid stage is a condition of hypostatic pneumonia of a high grade. A piece of the lung will sink in water. This condition is sometimes so marked as to lead to its being mistaken for pneumonia, and the sudden high temperature that occurs just before death gives some color to this idea. Microscopic examination reveals the error. Of course, this condition is practically the same on both sides and is limited to the lower lobes. A cut is smoother than a cut through an area of red hepatization. It should not be forgotten, however, that pneumonia may occur.

The kidneys are probably always affected. In the post-mortems held on the cases observed the lesions were frequently quite extensive. Interstitial nephritis, sometimes of a high grade, was always present, while parenchymatous changes were by no means rare. Large white kidneys were never found. Krukenberg describes the kidney-lesions, both macroscopic and microscopic, at length. His valuable article should be consulted on this point.

The heart was of the usual granular-kidney type. Beginning cirrhosis of the liver was occasionally observed.

The old inanition-theory, that delirium tremens is due to the want of an accustomed stimulus, is rarely advanced now. The arguments that have been urged against it seem conclusive. However, this does not exclude the idea that delirium tremens is a form of cerebral asthenia. By cerebral asthenia may be understood a condition of insufficient nutrition, not that the food needed is alcohol, but rather that the alcohol has interfered with the nutritive processes to an extent making proper nutrition difficult, while perhaps the last intoxication has for a time shut off the nutrition almost entirely. Associated with this view of the pathology is the idea, very commonly held by both physicians and laymen, that delirium tremens does not develop except in men that do not eat while drinking. It seems to me that this idea is founded on insufficient observation and is not entirely correct. The absence of food from the stomach makes the absorption of alcohol more rapid, but surely the deleterious effects of alcohol can and do occur in drinkers who eat. Of course constant drinking interferes greatly with digestion and nutrition.

Undoubtedly the symptoms of delirium tremens do present certain slight analogies with those of nerve-exhaustion, neurasthenia, especially perhaps in the way of the insomnia and the frightful dreams. It seems, improbable, however, that a neurasthenic condition could be carried far enough to produce all of the phenomena of this disease. In cerebral anemia we never find conditions analogous to delirium tremens, unless indeed, accepting the theory of Traube, we consider the symptoms of uremia as symptoms of cerebral anemia and edema.

The toxemic theory, *i.e.*, that delirium tremens is due to a toxic action of the alcohol imbibed (unless a very wide construction be put upon it), fails to explain the phenomena of the disease. No amount of alcohol will produce delirium tremens in a healthy man or animal not accustomed to drink. The symptoms of alcoholic poisoning are entirely different. It is hard to think of alcohol as a cumulative poison. And if alcohol should accumulate in the system, why would its effects differ from those of acute alcoholic poisoning, and why would two months, or even longer, be required to eliminate the poison?

More plausible is the idea that the disease is due to actual changes in nerve-tissues, the results of the repeated insults of the alcohol; that it is similar to alcoholic neuritis. This theory and the one allied to it, that delirium tremens is a form of insanity, is very often suggested. Delirium tremens and alcoholic insanity are far from identical clinically. Changes in the cerebral cortical cells have been described in delirium tremens, but they do not appear to be constant nor indeed frequent.

The symptomatology of delirium tremens strongly suggests that its phenomena are due to retained products of metabolism, poisons that may or may not be eliminated, rather than to chronic organic changes in nerve-tissue. Apparently the kidneys are constantly crippled.

On account of the large amount of kidney-parenchyma in excess of what is ordinarily needed, it is very difficult to draw inferences from the appearance of a kidney as to its efficiency. However, the constant presence of these lesions cannot but exercise some influence on the symptomatology, if, indeed, they do not cause all of the phenomena of the disease.

Fürstner found albuminuria in 40 per cent. of all cases examined. He also reports three cases in

which delirium tremens developed in well-marked cases of chronic nephritis. In these cases there was an enormous increase of albumin in the urine, and casts were also found. He attributes the albuminuria to a transitory hyperemia brought on by alcohol. These observations are very suggestive, as are also the similarities between the symptoms of poisoning in chronic nephritis and the symptoms of delirium tremens.

The eclampsias of the two diseases are identical. Delirium is a prominent symptom of uremia. Delusions of persecution are common in *folie Brightique*. It has been suggested that many of the hallucinations of delirium tremens are in reality illusions founded on alterations in the retina. These alterations may be of uremic origin. The tremor seems a specific symptom of delirium tremens. Muscular symptoms, however, not very different, also occur in chronic nephritis.

Osler, in speaking of uremia, says: "In some of these cases a condition of torpor persists for weeks, and even months. The tongue is usually furred, and the breath very foul and heavy." In the records of the Cincinnati City Hospital are to be found accounts of cases which entered in a condition of torpor, and finally died. The diagnosis made, chronic nephritis, was fully substantiated by the post-mortem examination. Yet these cases in every particular, both of symptomatology and of pathologic anatomy, were identical with the condition that over and over again was seen to proceed by inappreciable degrees from a typical delirium tremens.

Death from delirium tremens usually occurs at perhaps a little earlier age than does death in ordinary cases of granular nephritis. The first attacks of delirium tremens, which may occur early in life, are not fatal, being usually abortive cases. This may be because the kidney-lesions are not far advanced. Moreover, it is possible that elimination by organs other than the kidneys is also imperfect.

Many cases of uremia, and the other accidents of nephritis, such as edema of the brain and lungs, come on suddenly after a debauch or unusual exposure, and it is not impossible that the symptoms of delirium tremens may be of a similar nature, brought on by the extra work that the last debauch, with concomitant exposure, or injury, or pneumonia, throws on a pair of already crippled kidneys. It is well known how a chronic nephritis influences the prognosis of a pneumonia or an injury.

Uremia, as we ordinarily see it, and delirium tremens are not identical clinically; and for all that, in certain cases it is extremely difficult to differentiate between the two; yet, usually, does delirium tremens present a specific clinical picture. This is an argument against the theory that has been here suggested. Another point is that while the severe uremic symptoms of interstitial nephritis are usually associated with a great increase of albumin in the urine, all cases of delirium tremens do not have albuminuria.

So, for all the arguments in favor of the theory that has been here suggested, it cannot be said with any degree of certainty that it is the correct one. Further investigation must settle this. But whatever finally proves to be the true explanation of the phenomena of this disease, I believe it will be found that delirium tremens does not, and cannot occur in subjects with healthy kidneys.

TREATMENT.—The frequent, if not invariable, presence of kidney-lesions, whether these lesions do or do not constitute the essential pathology of the disease, should not be forgotten. It is wise to begin treatment with a purgative, and to keep the bowels freely open throughout the disease. Practice shows the value of this. Diuretics, especially digitalis, have been used, and highly praised. Probably hot-air baths and similar procedures would be of great value, especially in the typhoid stage. I have never seen them used. Such means should be used with the idea of eliminating the toxic principles, whatever they may be.

But there are a number of other indications to be met, and in meeting them we are possibly employing physiologic antidotes, for surely certain drugs seem actually curative. By the proper use of sedatives we can prevent the nervous system from becoming overwhelmed, until time enough has passed for the toxins to be eliminated. And, indeed, it seems that violent nervous disturbances are of themselves injurious and dangerous, aside from exhausting the patient, increasing, perhaps, the very products of metabolism of which we are anxious to get rid. It is not considered safe to allow the convulsions of puerperal eclampsia to go unchecked. Yet no one would claim that the drugs used in checking them remove their cause; but the common opinion is that these drugs are to some extent curative. Surely morphin is so considered by many.

A great many cases of delirium tremens will get well without treatment. These are usually abortive cases. First attacks almost always recover unless associated with pneumonia or injury. A careful attention to the digestive system will hasten recovery. Capsicum, or some similar drug, aids greatly in overcoming a nervousness (present after every alcoholic intoxication) that seems associated with the disturbed stomach.

In the severer cases the stomach-symptoms are not nearly so prominent. Vomiting never interferes with medication. Little can be done for the anorexia.

It is often impossible to tell whether a case in the incipient stage will stop or go on to more dangerous conditions. A radical treatment at this time is easier, safer, and more successful than later. Put the patient to sleep before the severe delirium comes on; it is easy now; it may be very difficult later. The earlier that chloral or other hypnotic is used, the easier can its results be obtained. Exhaustion does not assist the drug until the typhoid stage is reached, when the sleep obtained is not natural but a sort of semi-coma, and the time for benefit from the drug has passed; or, too often, the typhoid stage is never reached, and the exhaustion that we had hoped would aid us leads to a coma that rapidly ends in death.

The medical treatment in vogue at the City Hospital, when I was interne, was potass. brom., gr. xxx; chloral, gr. xx, every three hours—sometimes a little more and sometimes a little less. Very little else was used in the violent stage until the heart began to fail, when, of course, stimulants were administered. The results were not good. Bromids are absolutely worthless in such a disease. At the best their sedative action is a very mild one. Chloral was usually given in altogether insufficient doses. If the chloral or other drug does not make the patient sleep, it does no good and probably does harm.

In a few cases chloral was given in sufficient doses to produce sleep; 30, 45, or 60 grains, varying with the case, were given from every half hour to three-quarters of an hour, until the patient was asleep, and then if he was delirious on waking he got another dose, 30 grains being usually sufficient at this time. The cases so treated did remarkably well. When the treatment was commenced early, but small doses were required. One dose was often sufficient; more than three were never required. The patient often slept eight or ten hours without waking, and on waking was rational. Some of the cases so treated were very severe, one being complicated with a fractured jaw; yet all recovered. Of course, the unusually good results obtained were, in a measure, accidental. This treatment was not sufficiently used at the City Hospital to be very good evidence in favor of such dosage. In all, ten cases were so treated. But while this number is very small, it must be remembered that the results obtained by this treatment in former times were good. One great advantage this method has over repeated small doses is that the patient is not so often disturbed. It is often very difficult to persuade a violent delirium-tremens patient to take medicine after the first two or three doses. Hypodermatic medication alarms the patient too much.

In pneumonia the tendency to heart-failure is so great that perhaps chloral would be dangerous. However, recoveries under any treatment are rare. Perhaps it is especially in surgical cases that this treatment is most valuable. In these cases the first intimation of delirium should be met by sufficient chloral.

Unfortunately many cases will die, no matter what treatment is used. It is astonishing how rapidly some of these cases, especially surgical ones, grow worse in spite of all efforts of physician or surgeon.

Shackles are a necessary evil. In the violent stage they are often indispensable, the milder substitutes, such as tying a sheet over the patient and to the bed, being altogether insufficient. In the later stages it is bad practice to use them, as they tend to keep the patient in one position and increase a tendency to hypostatic pneumonia.

A number of drugs were tried in the typhoid stage. Ergot had no effect. It was used with a mistaken idea as to the pathology. Digitalis seemed of some value, but did not accomplish much. Whiskey was used without very satisfactory results, a much better heart-stimulant being found in strychnin. Some clinicians use whiskey quite freely throughout the disease. I am inclined to doubt the propriety of this. Strychnin is a most valuable drug in the typhoid stage, and indeed in every stage of the disease. It should be used very freely.

Patients in the typhoid stage should not be kept in one position. Possibly something might be accomplished in some cases by getting the patients out of bed occasionally. This, of course, should be done carefully.

The constant watching required through the many weeks that these cases often last is very exhausting to both physician and attendants, and is too liable to result in carelessness. Perhaps the greatest difficulty in treating delirium tremens is to persuade the attendants that the patients are really human beings, suffering from a disease.

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THE DIAGNOSIS AND PROGNOSIS OF ALBUMINURIA, INDEPENDENT OF NEPHRITIS.[1]

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VON HELMONT, a follower of the celebrated Paracelsus, and one of the founders of the Iart-Chemical School of Medicine, in the seventeenth century, thought that the cause of dropsy was *some* fault with the action of the kidneys.

Cotunnius, or Cotugno, in 1770, was aware that the urine, in cases of dropsy, would coagulate upon the application of heat. Following Cotunnius, Blackall, of Exeter, England, made a study of albuminuria, but owing to his comparatively limited facilities for post-mortem examinations, he failed to discover the true seat of the disease and expressed the opinion that it was "due to the elimination of the dropsical fluid by the urinary passages." The opinion thus expressed by Blackall may be regarded as the last expiring gasp of the old "humoral pathology" which, with more or less prominence, had cropped out in the philosophic speculations of most of the *schools* or *systems* of medicine with which the world has been blessed (or otherwise) since the days of Hippocrates.

The great Scotch pathologist, John Hunter (1728–1793) struck at the foundation of these speculations when he deductively assumed that disease is seated in the solids of the body rather than in the fluids. But humoral pathology received its death-blow when Bichat, the "father of general anatomy," by his indefatigable industry, opened a new era in medical science by directing the attention of students to the *tissues* of the body, thereby laying the foundation for the sciences of histology and pathologic anatomy. The labors of Bichat were brought to an untimely close in 1802, but the impulse that he gave to the prosecution of researches in morbid anatomy is still felt.

Richard Bright, pathologist to Guy's Hospital, following the line of study pursued by Bichat, and availing himself of the abundant opportunities for post-mortem examinations at his disposal, forever overthrew the humoral views then vaguely and dimly entertained as to the pathology of albuminuria and dropsy. Bright, although he did not fully elucidate the morbid anatomy of nephritis as we are now acquainted with it, for the first time ascribed the symptoms to physical changes in the structure of the kidneys, and hence there is propriety in associating his name with the disease.

Since the publication of the *Reports of Medical Cases*, in 1827, the names of Rayher, Johnson, Virchow, Rosenstein, Stewart, Gull and Sutton, Tyson, Da Costa, Ralfe, Dickinson, Dukes, and many others have become familiar in the literature of the subject. But although a great mass of information has been the result of the labors of these men, there are still many unsettled questions bearing upon the subject, which time alone can solve. Among these there are none more important than those indicated by the title of this paper. The vast majority of cases of so-called functional albuminuria, or, as I prefer to call them, "albuminuria in the apparently healthy," are discovered when the individual presents himself for examination as a candidate for life-insurance.

We have here, then, to decide whether, in the particular case, the albuminuria is due to a grave organic disease of the kidneys or to a condition dependent upon some slight and transient cause, from which the applicant may recover in a short time. This is a question of paramount importance, from whatever point of view we regard it, but it is one that cannot be satisfactorily answered at the first examination, and probably not at the second or even third.

As regards the urine itself, the main points to be determined are the significance of: First, the amount and persistence of albumin; second, tube-casts; third, specific gravity of the daily urine; fourth, the excretion of urea.

1. *The amount and persistence of albumin.* We can gain comparatively little information as to the nature of the case from a study of this question, for in that gravest of kidney-affections, granular degeneration, the albumin may be very small in amount and may occasionally be entirely absent. Mahomed and others have shown that this disease may even make considerable progress before albumin appears in the urine at all. Bartels,[1] of Kiel, refers to a case of granular degeneration of the kindeys which was under his care for a considerable time and until its fatal termination, in which no albumin was found in the urine at any time. Brannan[2] records a case in which an applicant for life-insurance was found to have albumin in his urine on one examination out of eight, spread over six months. Some months later the man committed suicide, and an autopsy showed commencing nephritis, as well as marked degeneration of the vascular system.

Some writers have thought that the albumin, in cases independent of nephritis, would not be present in a higher amount than $\frac{1}{25}$ or $\frac{1}{20}$ per cent.,

[1] Read before the Wisconsin State Medical Society, May 3, 1893.

but a prominent physician of this city has stated that, while a medical student in college some six or seven years ago, his urine contained a large amount of albumin for some months, the coagulum, on boiling, equalling about one-quarter the bulk of the urine boiled. His urine has now been normal for years.

2. *The significance of tube-casts.* When it was first recognized some years ago that albuminuria did not constitute nephritis, it was thought that when tube-casts were found in the sediment of an albuminous urine, this settled the diagnosis. This view has long since been given up. Da Costa, in his work on *Diagnosis*, speaks of a case in which tube-casts of the hyaline and waxy varieties were found, and in which recovery took place and no indications of nephritis subsequently appeared.

Johnson, Edes, Janeway, Saundby, and others[3] have, from their own experience, arrived at the opinion that "hyaline and epithelial casts are often present in the albuminous urine of patients whose speedy recovery may be confidently predicted." On the other hand, cases of well-developed nephritis may fail, on many examinations, to exhibit any tube-casts.

3. *Specific gravity of the daily urine.* This is regarded by some as one of the most valuable diagnostic indications we have, for the structural changes in the kidneys in chronic nephritis are such that, as Saundby has found, in 70 per cent. of cases the amount of urine is increased, the specific gravity being correspondingly low. Hence, other things being equal, a specific gravity of 1020, or above, of the total daily urine would strengthen the opinion that no grave kidney-disease existed. Da Costa[23] lays special stress on the importance of the specific gravity in the matter of diagnosis, stating that he has yet to see an instance of persistent low specific gravity in albuminuria associated with oxaluria and uric acid, and independent of nephritis.

4. *Excretion of urea.* Dr. C. S. Bond,[4] in a very interesting paper, has brought forward some striking facts to justify his opinion that a diminished average daily excretion of urea is one of the earliest indications pointing to chronic nephritis. Observations have been made by others as to this point, but they are not entirely in accord with those of Dr. Bond, and there are many cases in which the daily amount of urea is normal, or above normal, in which nephritis has been for some time established. Although I have done some work in this line myself, the facts elicited are not of sufficient number to be of any value as data upon which to hazard an opinion.

It, therefore, becomes apparent that we cannot base a diagnosis upon an examination of the urine alone, but must take a much wider view of the case. Before we can conclude that we have to deal with a case of albuminuria independent of nephritis, we must determine the absence of those subjective symptoms which usually accompany that disease, such as gastro-intestinal disorders, neuralgia, rheumatism, and cephalalgia. Saundby found that the pulse-rate in contracting kidney is usually high, ranging from 90 to 100 per minute, though in some cases it may be normal, and that the arterial tension is increased in about 50 per cent. of cases. As cardiac changes, as hypertrophy, appear in a certain proportion of these cases, it becomes necessary in reaching a diagnosis to have reference to the condition of the heart.

Give, then, a case of albuminuria: If upon investigation we find that, though the albumin is present in every specimen of urine examined, it is only in small amount; that the daily quantity of urine is normal, and of normal specific gravity; that the amount of urea excreted is normal; that the pulse is below 80 in frequency, and the heart is normal in size and sounds; that tube-casts are not found, or only occasionally found, in the urinary sediment; that no hereditary predisposition to kidney-disease can be established; that there are neither gouty nor rheumatic tendencies; that the functions of the skin and alimentary canal are active and efficient, it may fairly be concluded that we have to deal with a case in which the diagnosis of albuminuria, independent of nephritis, may be made. And this diagnosis may be adhered to, even if hyaline tube-casts are occasionally detected in the urinary sediment, particularly if the patient is below forty years of age, and crystals of calcium oxalate or uric acid are coincidentally discovered; it being easily conceivable that these substances may initiate such a condition of the uriniferous tubules as to give rise to casts, and which condition may be but transitory, the tubules returning promptly to a normal state.

But just as a cough which may be present in a given case for a more or less protracted period, independently of pulmonary tuberculosis, requires careful treatment, so do these cases of albuminuria, independent of nephritis, and the one case can no more be regarded as physiologic than the other.

Second only in importance to diagnosis is the question of prognosis, and this has reference not only to the immediate future of the case, but also to the remote future—that is the question as to the prospects of recovery from the immediate condition under consideration, and whether there is a greater tendency on the part of individuals thus affected to develop later in life the graver forms of kidney-disease.

On a superficial view we should be inclined to think that the prognosis for the immediate future

would be good, especially in cases in which the albuminuria is more or less intermittent in character, and less favorable when the albuminuria is persistent; and that as to the remote future, we might reasonably expect that among persons whose kidneys had exhibited impaired function on various occasions, and for different periods of time, there would develop an exceptionally large proportion of cases of chronic kidney-disease of a fatal character.

As to the first part of the question, we may perhaps assume to be in a position to speak with a tolerable approximation to definiteness. When albuminuria has been definitely shown to result from diet, muscular exertion, or exposure to cold, the prognosis is decidedly good for the present; and in the so-called simple persistent albuminuria the immediate prognosis is good; but should the case continue for a protracted period, the fear must ever be present that it will eventuate in the development of grave organic changes in the kidneys.

Grainger Stewart[5] says that his observations have led him to conclude that this is not a very frequent termination, but still it is one that is always to be feared, and that a careful watch should be maintained for indications pointing in that direction. Purdy[6] is distinctly of the opinion that persistent albuminuria depends on a pathologic condition of the kidneys, and is therefore of no light import. Roberts[7] expresses a rather decidedly favorable prognosis, but quotes Dr. G. Johnson and Dr. Dukes as being inclined to think that the condition may eventuate in nephritis.

Dr. G. Johnson[8] believes that the long-continued percolation of albumin through the walls of the Malpighian capillaries may result in decided pathologic changes to such an extent that albumin permanently escapes with the urine, "and in consequence of the long-continued filtration of albumin amongst the gland cells of the convoluted tubes, these structures may by degrees become so disorganized as to be incapable of discharging their excretory function." He further says[9] that these so-called functional albuminurias are often the prelude to a permanent and dangerous affection, and that proper hygienic care and watchfulness, together with attention to diet, are called for in order to postpone the grave form of disease.

Rabagliati[10] says that he is entirely out of sympathy with those who are disposed to take a favorable view of cases in which even a trace of albumin is present. Dukes[11] takes a distinctly unfavorable view of the prognosis when the albuminuria has persisted for any length of time. He says: "If the hyperemia be prolonged, however slight in degree, the albuminuria gradually becomes persistent, owing to the permanent dilatation of the bloodvessels, and tends to the destruction of the kidneys." Dr. J. W. Brannan[12] expresses his belief that all the forms and varieties of the so-called functional albuminurias will, unless arrested, ultimate in structural changes in the kidneys. Dr. Lewis,[13] of Hartford, Conn., from a study of vital statistics and the records of life-insurance examinations, infers that from 30 to 40 per cent. of cases of albuminuria terminate fatally. Dr. W. B. Davis, in a valuable contribution to this subject, read before "The Association of Life-Insurance Medical Directors," at its meeting in New York in 1891, refers to the records of the rejections by a certain, not specified, insurance company, on account of the condition under consideration for the years 1877, '78, '79, and January, 1880. The total number of rejections was 137, and of that number 57 had died by 1891; 11 per cent. died of nephritis and about 6 per cent. of heart-disease. Dr. Drysdale,[18] of London, regards the presence of albumin in the urine as a danger-signal, and has expressed the opinion that the man who had habitually or intermittently albuminuria, should make his will, if he had any property, and be prepared for any sudden illness; which, however, he thought might be avoided by a judicious diet and regimen. Dr. Sturgis,[20] in summing up his conclusions as to the value of albuminuria as a means of diagnosis, says that when present, no matter if it be in small quantity, it is always a danger-signal, and, when persistent, indicates some serious organic lesion somewhere. Dr. R. T. Edes[21] refers to Munn's observations, which go to show that many cases of albuminuria, when followed out carefully, are found to develop nephritis. Four of his sixty-nine cases died of this disease in three years.

On the other hand, there are recorded the opinions of such men as Saundby, Klemperer, and Senator, quoted by W. B. Davis in a paper read before the American Medical Association in 1890, to the effect that albuminuria is a source of no danger to life and does not become transformed into serious disease of the kidney. Keating[14] likens this condition to that of an ordinary "cold in the head," and says it has the same consequences. Maguire[15] divides albuminurias into two classes, those with high-tension pulse and those with pulse of low tension, and expresses the opinion that some of the latter might occasionally be accepted for life-insurance. Dr. Pye-Smith[16] believes all these so-called functional forms of albuminuria to be pathologic. He compares albuminuria with hemoptysis, which, though always serious, does not necessarily indicate grave organic disease, and is disposed to take a favorable view of the prognosis if nephritis is not actually established. Saundby[17] thinks cases called by Pavy cyclical albuminuria are insurable lives, and that there may be other forms of these cases at present badly defined which are equally insurable.

Dr. George Harley,[19] of London, does not consider the presence of albumin, whether temporary or permanent, as dangerous *per se*, but regards the prognosis in cases in which the specific gravity is not below 1.015 as good. Dr. Hingston Fox[20] thinks that, when a small trace of albumin is unexplained and all other elements in the life are perfectly sound, such cases are eligible for life-insurance, and that even when it can be shown that the albuminuria is toxic, or due to strain or shock, the cases might be accepted, rating up such lives a few years.

My own experience and observations of this affection, though not extensive enough to warrant any sweeping generalizations, are nevertheless offered for what they are worth, and tend to confirm the opinion tentatively advanced in an earlier portion of this paper, namely: that we might reasonably expect that, among persons whose kidneys had exhibited impaired function on various occasions and for different periods of time, there would develop an exceptionally large proportion of cases of chronic kidney-disease of a fatal character.

Between April, 1886, and January, 1893, in the course of examinations for life-insurance, I have encountered 39 cases of albuminuria. In these the average age was 36 years. According to the American Experience Tables the rate of mortality at the age of 36 years is 9.09 per 1000 per annum. Of my 39 cases of albuminuria, 4 have died, 3 of nephritis and the fourth of pulmonary tuberculosis. This is at the rate of 17.54 per 1000 per annum. This mortality-rate bids fair to be increased in the immediate future, for 4 more of these applicants have for some time been showing evidences of impaired health, one of them being in a decidedly bad state of health at present, having recently suffered a stroke of apoplexy.

It will be observed that the mortality among my cases of albuminuria has been nearly twice as great as the normal mortality.

I think, then, it is fairly safe to conclude that there is no such thing as functional albuminuria; that in every case it is just as much an abnormal condition as a nasal catarrh or as hemoptysis and should receive treatment accordingly; that while, in the individual case, we may feel justified in indulging the hope of ultimate recovery, we must not regard the condition as of such trifling import as to be passed lightly over, and must admit the fact, which seems fairly well established, that, other things being equal, the prospect of longevity is not as good for the albuminuric as for the individual who does not show this condition.

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805 GRAND AVENUE.

QUININE-BLINDNESS.[1]

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ON October 10th, a man, led by his wife, entered my office with the uncertain step of a blind person. As I tried his vision, I found to my astonishment that he had nearly normal sight. The examination of the field of vision solved the puzzle. In both eyes the field of vision was contracted to five degrees; it can be easily understood that an eye with such a small field of vision cannot see the way very well.

The patient, forty years of age, was in a flabby and relaxed condition. The physical examination of the viscera was negative; the urine was free from sugar and albumin. Both eyes, viewed externally, appeared normal. The pupils, in moderate light, were 2.5 mm. in diameter, motionless to light, but slightly acting in accommodation. Central vision: R. E. = 6/6; L. E., 6/9. The man read with plus 5 D., 15/25 and 60/130, but saw only one small word at a time. The field of vision was contracted to five degrees. The ophthalmoscopic examination revealed the optic discs pale, the borders not sharply defined, the bloodvessels about one-third the normal size, and some were bordered by white lines.

As we know by experiments and practice that strychnine heightens the susceptibility of the senses and widens the field of vision even in a normal eye, I made hypodermatic injections of this drug, one-sixtieth grain, and increasing the dose to one-sixth, injecting altogether two and three-quarters grains in twenty-six doses. I also applied the constant current, three milliampères, the anode over the eye, the kathode on the neck, for fifteen minutes daily.

On November 13th—that is, one month after the beginning of the treatment and nearly two and a

[1] Read before the California Academy of Medicine.

half months after the onset of the affection—the field of vision for white was nearly normal, but the field for colors—blue, red, and green—was still contracted to three degrees. On November 23d the latter was increased to one-half of the normal size.

As the patient had been a periodic drinker before, I examined with special care for a central scotoma for red and green, which characterizes alcohol-amblyopia and tobacco-amblyopia, but none was to be found.

The last examination, January 30th—that is, about five months after the attack—showed hardly any changes. The field of vision for white was still nearer the normal; the optic disc was more sharply defined.

The previous history of the case is as follows: The patient, a barber, for many years a periodic drinker, had never had malaria, nor had he ever taken quinine before. On the 30th of August, 1892, he fell sick, and called in the physician who was kind enough to send me these data. The patient suffered from a severe attack of malaria, with a temperature at 106° and a very small, quick, jerky pulse. Ten three-grain doses of phenacetin brought the temperature down to 100°. The man was then given ten quinine powders, five grains each, to be taken every three or four hours. After taking three powders the patient complained of deafness, but continued until he took three more doses—that is, in all thirty grains in twenty-four hours. The next morning he awoke totally blind. After he had taken four more of the powders the physician put him on Fowler's solution, with benefit to his general health.

Before speaking of the literature of quinine-poisoning, I would like to relate some experiments made for the purpose of studying the influence of small doses taken for a long time. Dr. Schulz,[1] of the University of Greifswald, gave to ten healthy students from one-twelfth grain to one-third grain of quinine daily for nine days, doubling this dose in the following two weeks. These small doses caused some slight affection of the brain, produced neuralgia of the fifth nerve, irritated the digestive organs, increased the quantity of urine; but they showed the greatest influence upon the circulation in accelerating the action of the heart. The tonus of the bloodvessels themselves appeared diminished, as the puffed-up face and congested conjunctiva proved. It appears that acceleration of the heart-action as well as the tonus of the vessels were varied. Even these small doses showed an effect on the ear and eye; signs of hyperemia followed, with buzzing in the ears, conjunctivitis, and "flickering" before the eyes.

Barabaschen,[2] of the University of Charkow, made experiments with larger doses, beginning with 0.3 and 0.6 grm. of quinine hydrochlorate. This dose had not much effect; in some it produced symptoms of intoxication, acute gastritis, anemia of the brain, pallor of the face and the mucous membranes, dizziness, sometimes to fainting; drowsiness, ringing in the ears, contraction of the retinal vessels, pallor of the optic discs, concentric contraction of the field of vision, deficiency in sight up to temporal amblyopia. Besides this he noticed (1) a marked improvement of vision lasting a few hours; (2) narrowing of the pupil lasting only a short while, and passing into dilatation; (3) acceleration of the pulse followed by retardation; (4) heightening of the sensibility of the skin, which after a short while gave place to diminished sensibility; (5) a small rise of the temperature, followed by the usual fall. In one case he observed blindness of half a minute, returning ten times at intervals of from five to ten minutes. Between the attacks the sight was normal.

Rogers [3] asserts that after the ingestion of twenty grains of cinchonine sulphate the following phenomena may be pretty constantly observed: In about one hour there will be found cardiac weakness and irregularity, and much debility with tremor. Paresis of visual accommodation progresses to such an extent as to be almost complete, in many instances at the end of the second hour; at this stage even the emmetropic eye will require the aid of a 10 D. convex glass to properly distinguish objects at the normal near-point. This paresis, he says, lasts eight or ten hours. Probably the great majority of cases of amblyopia escape observation and record.

The first case of quinine-amblyopia was reported in 1841 by Guacomini. Dr. I. E. Atkinson,[3] of the University of Maryland, in a paper read at the Fortieth Annual Meeting of the American Medical Association, June 25, 1889, very conscientiously and ably collected from the literature of the subject forty-eight cases of quinine-blindness and added one of his own observation. Since that publication I have found five other cases reported by Mellinger,[4] Herbert,[5] Garafolo,[6] Barabaschen,[2] and De Schweinitz.[3] Besides these there are about ten cases mentioned in the literature, without particulars. It would take too much time to go into details about all these cases, interesting as they are. I will therefore give only a short summary of them.

The blindness in these cases was mostly absolute; in some there was only amblyopia of varying degrees. The blindness generally sets in suddenly, "as though you had turned out the gas;" in many cases, however, vision fails gradually, so that it takes a few days before blindness is total. The duration of total blindness, the absence of all perception of light, varies within wide limits—from a few hours or a day or more to several weeks. In one case (Dewey) it lasted three months. In all cases sight was restored, though slowly, and nearly always imperfectly. Central vision returns first; the color-sense is restored later. In some cases the diminution of

the sense of light is permanent. The field of vision, which is extremely contracted, enlarges slowly and probably does not wholly regain its normal extent.

As variations which have been observed, I may add: anesthesia of the cornea, observed by Dr. Voorhies;[5] convergent strabismus, and nystagmus. Passing to the objective symptoms, we find in quinine blindness the pupil dilated and unresponsive to light. In my case, in which I found nearly normal central vision, the pupils did not respond to light, but to accommodative efforts. The opthalmoscopic examination revealed pallor of the optic discs and extreme diminution of the retinal vessels. In Voorhies' case there was no trace of the optic-nerve vessels; nor did they reappear, in the right eye at least, though the patient could read fine print. The bloodvessels generally remain smaller than normal; the color of the disc does not become normal, but often turns quite white. Dickinson[3] noted marked congestion of the retinal and choroidal vessels, together with a remarkable condition of the optic disc, which appeared swollen and pushed forward prominently into the vitreous. The appearance was very similar to that of the condition denominated "Stauungs-papille" choked disc, the usual concomitant or resultant of "neuro-retinitis." This is a striking variation from the otherwise universal experience, and it may not be impossible that the symptoms in this case were expressions of malarial intoxication such as are occasionally observed. In cases examined early with the opthalmoscope a whitish haze, with cherry-colored spots, has been observed at the macula, as in cases of embolism.

The pathogenesis of quinine-amaurosis has been elucidated by recent experiments on dogs by De Schweinitz,[7] of Philadelphia.

A brief summary of these researches shows that: "Quinine, given hypodermatically to dogs in quantities varying from one grain to four grains to the pound, produces blindness in from three to fourteen hours, the earliest appearance of the blindness after the injection being three hours. The ophthalmoscopic picture in these animals was, in all instances, similar to that which has been noted in human beings suffering from quinine amaurosis.

"The microscopical examination revealed thickening and changes in the walls of the central vessel (endo-vasculitis), organization of a clot, the result of thrombosis, an organization which has been carried on even to the extent of its being channelled by new vessels; widening of the infundibulum of the vessels as the result of the constriction of the surrounding nerve-fibers, presenting appearances not unlike a glaucomatous excavation; and, finally, practically complete atrophy of the visual path, including the optic nerves, optic chiasm, and optic tracts, as far as they could be traced. It seems, then, very likely that the original effect of quinine is upon the vasomotor centers, producing constriction of the vessels; that finally changes in the vessels themselves are set up, owing, perhaps, to an endo-vasculitis; that thrombosis may occur, and that the result of all these is an extensive atrophy of the visual tract."

Buller[3] found, by experiments on rabbits, that a galvanic current, applied to the optic nerve of a rabbit, speedily induces a blanching of the retina and nerve similar to that which occurs in quinine-blindness. By some accident he once produced the same picture in the human eye; therefore he thinks that the seat of the morbid changes is the optic nerve between the chiasm and the eyeball. Buller attributes the sudden blindness in cinchonism to a rapid effusion into the lymph-spaces around the nerve, causing an external strangulation, too transient to produce the phenomena of papillitis, but sufficient to bring about edema and blanching of the retina, and a permanent impediment to the blood-carrying capacity of the central arteries.

The dose of quinine sufficient to produce blindness is very variable and largely depends upon idiosyncrasy. H. C. Wood[3] has seen complete temporary blindness follow the ingestion of 12 grains. Nearly always, however, the doses must be very large. Briquet[3] thought that troubles of vision did not occur ordinarily until, for several days, doses of from 23 to 30 grains, or, for a single day, doses of from 45 to 60 grains, had been given. On the other hand, enormous doses sometimes fail to affect vision, though blindness always precedes death when the dose has been fatal. Taussig[3] has recorded a case in which a dose of 1 ounce of quinine sulphate was given to a soldier suffering from ague. The only results were complete deafness and a kind of stupor, followed by recovery.

One case is worthy of detailed report, as it is a typical one, and presents the features of an experiment. It was observed by Dr. Garofolo[6] in Schnabel's Eye Klinik at Graz.

A healthy man took 3½ ounces of quinine by mistake for magnesia. After three-quarters of an hour his head felt heavy, the whole body began to tremble, he vomited, and diarrhea set in; the patient was not able to stand upright. About two hours after he had taken this enormous dose, it grew dark before his eyes so that he could not distinguish faces. The next morning the patient was totally blind, was bothered by loud ringing in his ears, and trembled so that he could neither walk nor stand. Seventeen hours after he had taken the quinine the patient was brought to the eye clinic, where the examination revealed the following: The cardiac sound was dull, but distinct; the pulse small, soft, and slow; both lids were widely opened, the

pupils were dilated, the left *ad maximum* and motionless; both eyes were totally blind. The ophthalmoscopic examination did not show any pathologic symptom. With the right ear loud voices were heard at 1.5 m.; with the left ear, at 3.5 m. distance. The senses of locality, of temperature, and of taste were normal. The sense of smell was deadened. Quinine could not be found in the urine.

Consciousness was unimpaired, but there were hallucinations. The next day no ophthalmoscopic examination could be made on account of the man's mental condition, but on the fourth day the patient was quiet again. At the ophthalmoscopic examination the lateral half of the optic discs appeared very pale; all the arteries and veins of the retina were morbidly contracted. The shifting fog which filled the whole visual area cleared for moments. The patient had, temporarily, vision of 6/43; then every sign of perception of light disappeared again. On the fifth day the central vision of the right eye was 6/8 and he read Jaeger No. 1; in the left eye, 6/36, and he read Jaeger No. 9. The field of vision was contracted upon all sides, but broadened on the following days. The field of vision seemed to the patient to be filled with a whitish, shifting fog, through which objects placed before him became visible only after fixing his eyes upon them for a few seconds, and were again engulfed by the fog, after having been viewed for a while. This condition prevailed until the end of the fourth month. The pallor, first confined to the lateral half, later spread over the whole optic disc and remained so up to the date of dismissal. The size of the bloodvessels also remained stationary.

The veins showed an interesting phenomenon. From the sixth day all the veins of the retina seemed to be filled with very fine grains of blood, between which appeared light spaces. This appearance could be traced to the finest branches, and has been observed in diseases in which there is diminution in the quantity of blood in the retina, especially in embolism of the central artery. Schnabel showed that it can be produced in the normal eye by pressing the ball.

This phenomenon, in connection with the contraction of all of the vessels of the retina, proved that an abnormally small quantity of blood, under diminished pressure, and with diminished velocity, passed the vessels of the retina. Dr. Garofolo draws from this the conclusion that quinine-blindness is caused by ischemia of the retina. This insufficient supply of blood explains why the retina tires with such extraordinary rapidity. But there must, he thinks, be still another operating factor. The blindness has been observed by Graefe with normal ophthalmoscopic appearances, whereas different authors have noted full restoration of vision, though the vessels of the retina remained contracted.

I close with Dr. Atkinson's words: "Without doubt, immense doses of quinine are frequently taken without disastrous consequences, and, while blindness may always be expected in cases of lethal poisoning, it is impossible to fix within definite limits the non-lethal doses that may be expected to induce it. Unquestionably it largely depends upon idiosyncrasy; and, although it hardly ever develops except after the injection of large quantities of the drug, and even then with the greatest absolute rarity, the results are so terrible that even the remote possibility of its occurrence should have an influence in placing some check upon the lavishness with which quinine is too often used in the treatment of disease."

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CLINICAL MEMORANDA.

MASKED ENTERIC FEVER.

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OF KINGSTON, RHODE ISLAND.

IN the autumn of 1888 I was called to a case of severe cephalalgia in a young woman who had recently been married. I found a fairly well developed woman of twenty-one years, well nourished, of neurotic temperament, suffering from headache, which she stated was of monthly occurrence. Inquiry developed the following facts: At the age of four or five years she had scarlet fever, after recovery from which it was discovered that the vagina had become closed. The subsequent history was uneventful until the age of fifteen or sixteen, at which time she began to have headaches, soon recurring regularly every month and lasting from twenty-four to forty-eight hours. Treatment apparently had failed to lessen the duration or severity of these attacks.

With the headaches was associated acute pain in the breasts, with some swelling and tenderness. Rarely was there any abdominal soreness, and there had never been any abdominal enlargement. She had never had anything which could be considered as a vicarious menstrual discharge. Examination showed only a shallow cul-de-sac at the mouth of the vagina. The labia were normal in size and appearance, and the mons veneris well developed and covered with hair. The mammæ were well developed and normal. At this time the headache seemed to be relieved by caffeine and atropine.

For several months subsequent to my first visit I was called on to relieve these headaches, and during this time the question of an operation for the atresia was considered and advised. It seemed to me that should the making of a new vaginal passage fail to develop a rudimentary uterus, it would at least offer the means for an approximately normal sexual congress, which the married condition seemed to render necessary.

On June 11, 1889, the headache (unusually severe) was associated with an eruption noted on my record as "nettle-rash." On the 14th instant I was called again. Headache was still present, but not severe. The rash had entirely disappeared. There was rather marked debility, for which a tonic was prescribed. That night she had severe cramp in the calves of her legs, and it took several doses of morphine sulfate, gr. ⅛, atropine sulfate, gr. $\frac{1}{80}$, to relieve it. On the 19th I was called to prescribe for a diarrhea which had troubled her for about twenty-four hours. She had no fever, no headache, and there was no abdominal tenderness. Salol and Dover's powder controlled the diarrhea so effectually that on the 23d I was obliged to order laxatives, giving at the same time elixir ferri, quininæ et strychninæ, ʒj t. i. d., as there was little appetite and her debility persisted. On the 29th backache was complained of over the kidneys and there was slight fever, and on the next day she had pain and soreness all over, the pain being most marked in the head and loins. On July 1st nausea and headache seemed to be her only trouble, and in spite of treatment these continued until the 4th, when the nausea ceased, but the cephalalgia grew worse; she also grew slightly feverish and very nervous and irritable. The temperature was highest on the mornings of the 4th, 5th, and 6th, falling to normal in the afternoon and evening. At its highest in the mouth it was only 100.5°. On the 6th the mouth was sore and contained several patches of canker.

From the 8th to the 10th Mrs. S. was greatly troubled with insomnia, for which bromids were given, combined with the tincture of digitalis. Her strength was not very great, but nothing pointed to any immediate danger. At noon of July 11th I was hastily summoned and found her in imminent danger from heart-failure. Prompt administration of digitalis and whiskey hypodermatically caused her to rally. She was then put upon tr. digitalis, gtt. ij; tr. nucis vom., gtt. iij; whiskey, ʒjss, every hour in milk. At this time her pulse, irregular and thready, averaged 120, and her respiration was 40, shallow and sighing. She continued in this condition, dozing lightly, but rousing to take medicine and nourishment, until July 13th. During this time the digitalis failed to affect the pulse-rate, and she had several acute exacerbations of heart-weakness. At 8 A.M. of the 13th her pulse was 150; respiration 42, shallow and grunting; temperature 103°. She failed gradually, and died at 6 A.M. of the 14th. During the last three or four days she was slightly delirious. Suspicion of typhoid fever was entertained once or twice during the second and third weeks of illness, but entire lack of abdominal tenderness and tympanites, and the irregularity and low range of the fever caused the suspicion to be dismissed. The abnormal physical condition and the coincidence in point of time of her commencing illness with her monthly disturbance gave the sexual cause the preference as the explanation of the sickness. Two days before the death of the patient, feeling again that there was a possibility of a masked case of typhoid, I called Dr. H. K. Gardiner in consultation, and he concurred with me in that diagnosis. Throughout the course of the disease, tonics and easily-assimilable food had been given regularly, and every effort made to conserve the patient's strength. Otherwise the treatment was purely symptomatic.

An autopsy made two hours after death, by Dr. Gardiner and myself, revealed the following interesting conditions: On separating the labia vaginæ no vagina was found. What seemed to be the urethra proved on closer examination to be a blind pouch about 1 centimeter deep and the same in diameter. Into the anterior portion of this pouch opened the urethra, which was normal in size and appearance and also in its relation with the other parts of the pelvis. The labia were of normal size. On opening the abdomen the mesentery was found normal in appearance, containing a moderate amount of fat. A few of the mesentric glands were slightly inflamed. The peritoneum showed no signs of disease. The intestines were distended with gas, but contained no feces. In the ileum were well-defined ulcers limited to Peyer's patches. Other Peyer's glands seemed to have recently healed and one or two were congested and swollen. It may be said here that the possibility of miliary tuberculosis of the abdominal organs or tuberculous ulceration of the intestines was borne in mind during the autopsy, and that no signs of the former could be detected, and the ulcers found in the ileum were unmistakably typhoid. The spleen was somewhat enlarged and congested. The liver and kidneys appeared normal on section. As the patient had had no cough and no symptoms of any pulmonary disease, we yielded to the objections of the husband and left the thorax unopened.

The uterus was four cm. long externally and had an external diameter of one cm. There was apparently no uterine cavity. The vagina was represented by a ligamentous membrane about seven mm. in thickness. The Fallopian tubes and the ovaries were normal in size and appearance, except that the right ovary contained a small cyst about the size of a bean. We were unable to remove the parts for microscopic or other examination. The other cavities of the body were not opened.

It is of interest to know that the mother of this patient had atresia vaginæ following a fever, and was successfully operated on for the restoration of the passage. Operation had been urged in this case, and it is a question of much interest whether such an operation performed at the age of puberty would have led to the development of an arrested uterus and made a sexually perfect woman. Another question raised by this case is the moral right of such a woman to marry. In this particular case the man was fully aware of the woman's imperfections previous to the marriage; but even so, is not such marriage liable to lead to marital infidelity, or to repulsive abnormal sexual gratification? In regard to the typhoid fever I can only say that it is the most misleading case I have ever seen in a practice of over ten years.

SYNDACTYLUS.

BY A. L. BENEDICT, A.M., M.D.,
OF BUFFALO, N. Y.

THE following case I am enabled to report through the courtesy of Dr. Marcell Hartwig, who very kindly invited me to assist at the operation, and to make an examination of the anatomic condition.

The patient was a child, six days old, that presented the following peculiarities. Of the left hand the metacarpal bone and phalanges of the thumb were normal.

There were two other metacarpal bones and fingers. The proximal and middle phalanges were separate, so far as the bones were concerned, but the skin was united in a web, with a distinct crease beneath the bones. The distal phalanges inclined toward each other, and blended into one broad, bony mass. The nails were completely fused, showing a broad half-moon. The joints were movable, except in so far as they were limited by the obliquity of the distal phalanges.

The right hand, at first sight, appeared to be a second left hand without a thumb, but having three fingers. Closer examination showed that the little outer digit had only two phalanges, and was, therefore, a thumb. It was separated from the index finger by a cleft extending to the base of the nails, and by a web reaching half-way down the proximal phalanx. Below this point the fleshy union was almost complete. The remaining digit had also a separate nail, and was without bony connection with the index finger. The soft parts, however, were closely united throughout their whole extent. There was not even a web, only a deep dorsal crease, to separate the two fingers. On account of this crease the dorsal aspects of the fingers slanted toward each other, making an angle of 135°.

The left foot was normal, except for an unusually wide separation of the hallux from the lesser toes.

The right foot had four metatarsal bones and digits, the missing member being apparently the second toe, for the hallux was remote from the three other toes. The next two toes, corresponding to the third and fourth of a normal foot, had a web extending the length of the proximal and middle phalanges.

There was also an antero-posterior angle in the lower third of the right tibia, presumably due to an intra-uterine fracture. The mother had fallen down five steps two or three months before confinement, striking on her back.

The child was, with the exceptions noted, well formed and healthy. There was nothing to account for the anomalous development of the feet and hands. The parents were healthy young Germans, who had had two previous children without deformity, and no history could be elicited of any malformation in either family. The parents ascribed the deformities to a maternal impression. When about five months pregnant the mother had an altercation with a peddler, who startled her by suddenly holding up before her a mutilated hand.

The operation was conducted under chloroform-anesthesia, lysol being the antiseptic used. The fingers were separated in the usual manner by the sigmoid skin-flaps, except where the absence of a true web prevented. In these places iodoform-gauze was tucked between the fingers to prevent reunion. Correction of the tibial deformity was postponed, and operation on the toes was considered unnecessary.

HEARING RESTORED BY LARGE DOSES OF QUININE.

BY J. S. TRIPLETT, M.D.,
OF HARRISONVILLE, MO.

THE patient, a man of sixty-two years, is very robust, and has always had very good health. About eight years ago he noticed that the hearing in his right ear was steadily growing less acute, until he finally became absolutely deaf in that ear; the hearing in the left ear remaining normal.

Shortly after the deafness developed both lenses of the eyes became cataractous, the left maturing before the right. Two years ago, in September, the left lens was extracted. All went well until he "caught cold" in the aphakic eye, when severe opthalmitis set in. The pain was so severe that the opiate directed by his physician did not allay it. He told his physician to prescribe for him all the quinine he could stand. The quinine was put into large capsules, and he was directed to take one capsule every four hours; but instead of taking *one* he took *three* capsules every four hours. Cinchonism followed, and a "burning sensation" in the extremities, especially the lower, was experienced. The ocular inflammation subsided, but with loss of vision. With the subsidence of the inflammation hearing returned, and has been normal ever since. There was no discharge from either ear, nor was there tinnitus aurium in either. No cause could be assigned for the deafness. The man had never been troubled with catarrh of the naso-pharynx.

In the following March the remaining cataractous lens was extracted. No complication arose, and the man now has good vision in the eye.

It seems that in this case quinine simply reversed its usual modus operandi. I suppose there is no practitioner who has not seen deafness of varying degrees, temporary or permanent, caused by large doses of quinine.

It is known that quinine produces congestion of the peripheral sense-organs, and it is probable that the auditory organs were in such a peculiar condition that congestion brought about this happy result.

I think it also probable that, unnoticed, a slight discharge may have escaped during the height of the congestion. I do not know the quantity of quinine taken.

MEDICAL PROGRESS.

The Early Diagnosis of Chronic Nephritis.—For many years M. DIEULAFOY (*Lancet*, No. 3643, p. 1542) has sought to emphasize the importance of divers symptoms which, though often apparently trivial, are none the less significant of the existence of that very common malady, chronic nephritis. To these symptoms he has given the name of *petite urémie* or Brightism. He regards albuminuria as an unreliable symptom of chronic nephritis. Of sixty cases under treatment in his wards during recent years albuminuria was absent in one-fourth. That nephritis really existed was proved in several instances post mortem. In another series of cases albumin disappeared in spite of the continued evolution of the disease. Some patients are albuminuric without being nephritic. Amongst the symptoms of nephritis M. Dieulafoy mentions auditory troubles. These consist in whistling or more sonorous noises in one or both ears, the causes being multiple (edema, paralysis of the acoustic nerve, variations in pressure). The frequency of these noises may be judged of when it is stated that they were present in thirty-four out of sixty cases. Menière's vertigo was

frequently complained of (thirteen times in sixty). Asphyxia of the extremities, first described by Maurice Raynaud, is one of the commonest symptoms of chronic nephritis. This begins as formication of the hands or fingers, and then the tips of the latter become bloodless, pale, and numb. This dead-finger symptom is found in all the forms and in all the stages of chronic nephritis. Itching, without possessing the same importance as the foregoing, is sometimes very severe. Frequency of micturition is well known as a symptom of the disease. To this symptom M. Dieulafoy has given the name of pollakiuria, to distinguish it from polyuria, many nephritics, in fact, urinating ten or twelve times a day without voiding a quantity above the normal. Cryesthesia (κρίος = cold), or sensitiveness to cold, is a minor symptom of nephritis. It is generally confined to the lower extremities. Cramps, especially nocturnal, in the calves of the legs are sometimes severe enough to wake the patient. Epistaxis, chiefly occurring in the morning, is often significant. Electriform shocks must also be counted in this category. At the moment of falling asleep or during sleep the patient is aroused by a single violent shock, recalling the effects of an electric discharge. The temporal sign is frequent. Here the temporal artery is distended, dilated, and tortuous without being atheromatous. This is, of course, due to high arterial tension. The foregoing symptoms, if associated in any one individual, are, according to M. Dieulafoy, sufficient to warrant the diagnosis of chronic nephritis. He is convinced that many persons apparently healthy are in reality nephritic. A confirmation of this diagnosis will frequently be found in the good effects of an exclusive milk-diet, which causes the disappearance of these seemingly insignificant troubles. M. Dieulafoy has also applied another test—viz., the degree of toxicity of the urine passed by patients affected with chronic nephritis. He finds that this secretion has in such cases lost a portion of its toxic properties.

Extensive Sinus-phlebitis Successfully Treated by Removal of the Petrous Portion of the Temporal Bone.—BIRCHER (*Centralbl. f. Chirurgie*, 1893, No. 22, p. 483) has reported the case of a woman, twenty-five years old, who had scarlatina in 1877, which was followed by suppuration of both ears, with total loss of hearing on the left and partial loss upon the right. In September, 1892, she was seized with chills, pains in the extremities, intense headache and mental confusion. The mastoid process and the lateral portion of the neck in the course of the great vessels on the left side became sensitive to pressure, but not red or tumid. On September 8th the mastoid process was opened and offensive pus evacuated. The bony wall of the transverse sulcus was perforated, and between this wall and the membranous investment of the transverse sinus lay a second collection of pus. After thorough evacuation and disinfection the wound was closed and dressed. The patient was temporarily relieved; but on September 11th hectic fever returned. On September 16th the oculo-motor nerve was found to be paralyzed, the pupil dilated, and pain was present in the course of the frontal nerve. On the 19th the abducens and the trochlear nerves were paralyzed. On the following day, after exposure of the bone, two trephine-openings were made, side by side, above the external auditory meatus, and through these the middle fossa of the base of the brain entered. The entire petrous portion of the temporal bone was carefully removed, but not until the apex was reached was a collection of pus found. The parts were now thoroughly curetted, cleaned, and disinfected, and an antiseptic dressing was applied. Fever and headache at once subsided. In consequence of the removal of the portion of the facial nerve contained within the petrous bone the left side of the face was completely paralyzed. There was, besides, total ophthalmoplegia, with inflammation, in consequence of imperfect closure of the eye. There was diplopia when the lid was elevated. Accommodation was paralyzed. The fundus appeared normal. There was pain in the course of the first branch of the trigeminus and sensitiveness in the course of the infra-orbital division. Morphine and bromids brought amelioration but not cure. On November 15th the frontal nerve was resected, with entire relief to the pain. Some degree of movement in the left eye had by this time returned. The trochlear nerve and the branch to the levator palpebræ superioris were the last to resume their function. The restoration was but partial in the ocular and in the facial muscles, but by wearing spectacles during the day and covering the eye with a damp cloth at night the woman was able to resume her duties as a farm-laborer.

The Structure and Function of the Mammalian Heart.—As the result of a special research, KENT (*Journal of Physiology*, vol. xiv, Nos. 4 and 5, p. 233) has found that whereas in the past it has been supposed that the mammalian heart differed from the heart of cold-blooded animals, in having a complete break of muscular continuity between auricles and ventricles, it has now been shown that no such break exists, but that the auricles are connected with the ventricles both by strands of altered muscular tissue (especially well developed in the lower mammals) and by a more complex system of branching and anastomosing fibers, which penetrate the fibrous tissue between the two chambers (specially well developed in the higher mammals). Muscular continuity being established, and a variety of observations upon the human heart, such as the study of the reversed beat, the time-relations of the reversed as compared with the direct beat, the time-relations of the beat in animals of different ages, the effects of compression of the auriculo-ventricular groove and the study of the beat in the dying heart, all tending toward the explanation of the transmission of the contraction from auricle to ventricle as a case of simple muscular conduction, the ideas that have been held as to the nervous nature of the transmitting apparatus become less necessary than up to the present time they have been. The results of observations upon the hearts of cold-blooded animals, in which the connective muscular connection has long been known to exist, become to a certain extent applicable to the heart of the mammal, and many of the effects obtained by artificial interference with the muscular structures existing at the groove in cold-blooded animals may be obtained with almost equal ease in the case of the mammal. The passage of a contraction over the auricular wall also has been proved to occur independently of the larger nerves, inasmuch as the contraction can pass over a zigzag strip of tissue made by a series of

interdigitating incisions carried in any direction, and the free application of ammonia to all visible nerves does not arrest the contraction either in auricles or ventricles. The passage of the contraction over the cardiac tissue of the heart then appears to occur as a simple muscular wave, and the transmission of the contraction across the auriculo-ventricular groove appears to be of a similar nature.

Diabetes, with Diabetic Coma, in an Infant Eighteen Months Old.—DUFLOCQ and DAUCHEZ (*Revue de Médecine*, 1893, No. 6, p. 546) have reported the case of an infant, eighteen months old, always well from birth, but for two weeks constipated, in consequence, it was thought, of the use of sterilized milk, of which immoderate quantities (five pints daily) were taken. Within this time the child had become ill-tempered and depressed, and moaned at night. The urine was passed in excess. Notwithstanding its good appetite, the child had become greatly emaciated. The mother attributed the symptoms to difficult dentition, as two canines were about to make their appearance. There was no vomiting. The abdomen was distended with gas. The pulse was feeble, the face cyanotic. On the day after the first observation the child appeared to go into collapse, and became comatose. For the first time the possibility of diabetes suggested itself, but no urine could be obtained. The child could not be brought out of this condition, and death took place. Examination of a napkin that the child had worn disclosed the presence of a sticky powder, which upon solution and chemical analysis proved to be glucose. Two other cases of diabetes in infants under two years of age, in which death took place in coma, have been reported. In these also dentition was in progress. In another case diabetes developed, a few weeks after birth, in an infant that was nourished with corn-starch, a fatal termination ensuing. In one case, in an infant of seven months, diabetes developed four weeks after a fall from the nurse's arms. In some instances heredity seems to play a significant part. Among the symptoms noted in many of the cases was a change in character. Previously bright and good-natured children became morose and ill-tempered. Constipation and abdominal distention were common. The frequency of micturition was increased, and increased quantities of urine were excreted. There were also thirst, pallor, and emaciation. In some cases coma develops suddenly, and some terminate fatally. In other cases death has resulted from asthenia, pulmonary gangrene, broncho-pneumonia, or generalized miliary tuberculosis. Recovery is exceptional, but has been observed. Finally, it is pointed out that the rapidity of course is suggestive of an infectious origin.

Intubation in a Case of Laryngismus Stridulus.—POTT (*Münchener medicin. Wochenschr.*, Jahrg. xl, No. 16, p. 303) has reported the case of a child, a year and a half old, in which impending suffocation during an attack of laryngismus stridulus was relieved by the introduction of a tube into the larynx, in conjunction with the employment of artificial respiration. Neither the beating of the heart nor pulsation at the wrist could be perceived. On account of the abolition of reflex sensibility there was no difficulty in the introduction of the tube, for which purpose, to save time, the extubator was used. After five minutes the heart could again be heard to beat, and the pulse returned at the wrist. The cyanosis soon subsided. In the course of ten minutes more, spontaneous respiratory movements returned. The tube was retained for half an hour, when, on account of irritative cough, it was permanently removed. Other attacks occurred, but none of the same intensity as the one detailed.

Extirpation of Carcinoma of the Pylorus.—At a recent meeting of the Paris Academy of Medicine, DEFONTAINE (*Le Mercredi Médicale*, No. 24, 1893, p. 290) reported two cases in which he had successfully removed the pylorus for carcinoma. One had been operated upon a year previously and the patient had gained 30 pounds in weight. The second operation had been performed a month before. The patient was able to take nourishment on the fourth day; to arise from bed on the twelfth day; and to leave the hospital on the fifteenth day. In both cases the operation was rapidly followed by restoration to health. In a short time the yellowish, earthy appearance was replaced by a clear complexion. The results were more satisfactory than could be attained by gastro-enterostomy, as the orifice of communication between stomach and intestine remained sufficient, and the offending cause was removed.

Spina Bifida Cured by Operation.—WALTHER (*Rev. des Mal. de l'Enfance*, May, 1893, t. xi, p. 193) has reported the case of a child that at birth presented a spina bifida in the sacral region, the walls of which were so thin that immediate operation was determined upon and carried out four hours after birth. By means of a capillary trocar, about seven and one-half ounces of fluid were gradually evacuated. The sac was dissected up and the opening that remained closed by means of sutures. The recovery was excellent, and eighteen months later the child was in good condition and learning to walk.

THERAPEUTIC NOTES.

The Use of Methylene blue in the Treatment of Malaria and Diphtheria.—KASEN-BECK (*Centralbl. f. klin. Medicin*, 1893, No. 25, p. 521) has reported the employment of methylene-blue in the treatment of thirty cases of malarial fever and twelve of diphtheria with entirely satisfactory results.

In the cases of malaria the remedy was employed only when quinine and its salts disagreed, or after these and other drugs, including phenacetin, antipyrin, phenocoll hydrochlorid, ammonium chlorid, tincture of helianthus, eucalyptus globulus, and arsenic had failed. The diagnosis was based upon the physical examination, the blood being examined in only one instance, with the result of finding malarial parasites; the cases were, however, otherwise typical. The patients varied in age from two and one-half to forty years. Three suffered from masked intermittent fever; in one, manifested by trigeminal neuralgia, in another by headache, and in the third by pains in the eyes for five years. It was in the last case that plasmodia were found in the blood. The remaining cases presented intermittent fever of varying type, mostly, however, tertian and quartan. The

duration of the disease had varied from three weeks to a year, mostly, however, from three to six months. The drug was given four or five times a day, at intervals of an hour, in capsules, in doses of 1.5 grains, with 2.5 grains of powdered nutmeg. The paroxysms ceased soon after the institution of the treatment. In only one case did a recurrence take place, for the dissipation of which the solution of potassium arsenite, in ascending doses, became necessary. In five cases vomiting followed the ingestion of the first one or two doses. In most cases there was increased frequency of micturition, unattended, however, with pain. In some cases, in which the nutmeg was omitted, and in some in which full doses (4.5 grains) were given, strangury occurred; in one case hematuria occurred, but ceased after the withdrawal of the remedy.

In the cases of diphtheria a watery solution (1 to 9) was applied to the affected surface two or three times a day by means of a cotton swab. The temperature soon declined; edema and inflammation rapidly subsided, and the membrane was rapidly cast off. The urine became slightly discolored. It is suggested that small doses of the remedy be also administered internally. To facilitate the desquamation of the membrame small doses of pilocarpine (gr. $\frac{1}{25}$ to gr. $\frac{1}{10}$, thrice daily) were additionally prescribed. Recovery ensued in every instance. In three cases paralysis of the palate occurred, and in one of these paresis of the lower extremities.

A Case of Paraldehyde-habit.—ELKINS (*Edinburgh Medical Journal*, July, 1893, p. 39) has reported the case of a man, sixty-five years old, who for seven years had been troubled with insomnia of gradually progressive intensity. On one occasion small doses of paraldehyde were directed and proved useful. A habit was soon acquired, and the doses were rapidly increased, so that after two years and two months sixteen ounces of the drug were being taken in the course of a week. Emaciation became pronounced, and symptoms resembling those of delirium tremens made their appearance. The insomnia was most distressing. There was general tremulousness; the gait was feeble and unsteady, and all movements were slowly performed. The action of the heart was weak and irregular. The pulse was seventy-four, and intermitted every ten or twelve beats, while the volume of the beats was unequal. Flatulence was marked, and the bowels were costive. The breath smelt strongly of paraldehyde. The patient was nervous, restless, and anxious about his condition. An attempt was made to gradually withdraw the drug, but was attended with a good deal of difficulty; the patient developing hallucinations of sight and hearing, and becoming quite unmanageable, and, for a time, refusing all medicine. On a few occasions fifteen grains of sulfonal were given. Finally, gradual improvement set in, and after the lapse of about three months the man was quite restored to health.

Treatment of Gonorrhea.—The line of procedure followed out at the clinic of Blaschko, at Berlin, is thus described by GEBERT (*Münchener medicin. Wochenschr.*, 1893, No. 25, p. 491). In recent cases injections are not used, but instead oil of santal is given six times a day in capsules, each containing 7½ minims. If the patient cannot swallow capsules, the following prescription is given:

℞.—Olei menth. piper. . . . . gtt. x.
Olei santal. . . . . ad ℥ss.—M.
S.—Gtt. xv thrice daily.

This treatment will in most cases lead to recovery in the course of three weeks. Should the secretion persist after this time injections may be begun. Of these the best are zinc sulfate, 0.5 to 100, and potassium permanganate, 1 to 200. Subsequently astringents may be employed: tannic acid, 1 to 200, or argentic nitrate, 0.03 to 100. In addition to the local treatment the diet must, of course, be properly regulated. In case of epididymitis recumbency in bed must be insisted upon and compresses applied. In cases of chronic gonorrhea of the anterior urethra injections of argentic nitrate, 1 to 2000, or stronger, are employed. In cases of chronic gonorrhea of the posterior urethra injections or applications of argentic nitrate are made.

Codeine-intoxication.—SPRATLING (*Medical Record*, No. 1184, p. 77) has reported the case of a married woman, who, immediately after dinner, took sixteen half-grain pills of codeine. An hour later nausea appeared, followed by the vomiting of a small quantity of semi-liquid matter. There were marked irritability and restlessness. Convulsive movements, involving the entire voluntary muscular system, but most marked in the upper extremities and in the head, occurred at frequent intervals. There was intense irritation of the skin all over the body, but most annoying on the flexor surface of the forearms and on the back. The surface of the body was warm and dry. The pupils were fixed in pin-point contraction. The respirations numbered twelve per minute. There was complaint of great thirst and an uncomfortable feeling of fulness of the head. After the painful irritation of the skin had been relieved by sponging the body with a solution of sodium bicarbonate, the woman sank into a slight doze, from which she would awake in a few minutes with a start. The skin was hyperesthetic to a marked degree. The usual treatment for opium-poisoning was employed, and in a few hours marked improvement had taken place, leading soon to perfect recovery.

For the Dyspnea of Pulmonary Tuberculosis.—ROBINSON (*Medical Record*, No. 1184, p. 77) recommends a tincture of "rosin-weed," prepared according to the following formula:

℞.—Ext. fluid silphii lancinati (radicis) . f. ℥j.
Spts. vini rectif. . . . . f. ℥iv.
Aquæ . . . . . f. ℥ij.—M.
Filter, Sig. f℥ss–f℥j as a dose.

For Chronic Eczema.—

℞.—Acid. salicylic. . . . . gr. xxx.
Zinci oxidi . . . . . ℥vj.
Pulv. amyli . . . . . ℥vj.
Vaselin. . . . . ℥jss.—M.
S.—To be applied topically daily and not to be washed or rubbed off.—*The Practitioner.*

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SATURDAY, JULY 29, 1893.

THE DISORGANIZATION OF MEDICAL SCIENCE.

ONE of America's well-known scientists, in charge of an ethnologic exhibit at the Columbian Exposition, was asked if there were no distinctive medical exhibit showing the progress of medical science and art. "Progress of Medicine!" said he, contemptuously. "There is no such a thing!" From further conversation it was clear that, in the opinion of the gentleman, by the term medical science is only to be understood the curing of a sick person in its most restrictive sense. It may be asserted, moreover, that this limited definition is that tacitly agreed upon by the general scientific mind of the day. It is becoming more evident that hygiene, with its hundreds of subordinate departments, and its thousands of meeting-points with human life, is becoming autonomic, so far as medicine is concerned, and that soon hygiene and medicine will not only be possibly distinct callings, but that they will necessarily be distinct. Bacteriology is also tending toward a similar autonomy. In a word, to generalize the two aspects, we may say that preventive medicine and curative medicine are slowly drifting apart, each segregating into distinct fields of study and activity, to be pursued less and less by the same individual. Even the medical profession is in various ways assenting to the breach. It is not uncommon to hear some semi-contemptuous remark about the "laboratory doctor," the "bug-man," or the "sewer-physician."

But it remains an infinitely serious question whether this is a wise movement or not. It may even be held one of the most important things the profession has to ponder and decide about during the next generation. Its significance is manifest in the fact that with the progress in civilization cure must more and more yield place to prevention, so that as all wise minds seek to forefend coming ill, the function of the therapeutist as such must be one of progressively lessening influence, whilst that of the preventer must be one of continuously enlarging influence. If the treatment of smallpox a century ago had been the sole duty of the physician, he would now find himself out of work. Thus as one after another we learn the preventions of diseases, the rôle of the therapeutist becomes more and more sharply restricted with each new discovery.

It may be said that it matters not by whom or by what class of men the work is done, so that the work is in truth done, well done, and so that society receives the protection. In answer, it should be remembered that there is a doubt in the minds of many if the tendency toward differentiation of function in our work of life is not already excessive. Some specialism there must be, even much, but so far as medicine goes it is agreed that all specialists must first have a thorough grounding in general medicine, and that they must well understand the physiologic and pathologic relations of the special organs and objects of their own study with those of other specialists. Moreover, prevention is never absolute, and no disease is, so far as we can judge, ever wholly stamped out. Hence the curers will always have office, and work to do. Prevention, too, not seldom runs, or may run, into pathogenesis, and the sanitarian or bacteriologist must be on the alert to see that prophylaxis shall not indirectly become the origin of disease. He must be a physician to keep from being a disease-producer.

A multitude of weighty reasons at once arise in the mind, all going to show that if the two departments of curative and preventive medicine become separated, each officered and manned by men knowing little or nothing of the work, methods, and ideals of the other, it will be the worse for that society for whose welfare we labor. The consequent narrowing of the physician's sphere of labor and usefulness will serve to further emphasize the contempt

with which the populace already looks upon the doctor-world. Medical sectarianism will be immensely increased by it, and heaven knows that few greater misfortunes could happen than greater popular ignorance as to the value to the world of an enlightened and powerful medical profession, and of the disgrace of medical sectarianism.

Those, therefore, who shape our legislation and mould popular sentiment, should, we think, struggle against the disorganizing tendencies of our science. The work of preventing and of healing disease is essentially one work, and the further apart they drift the poorer will the work be done, the worse for society, and certainly the worse for that part that is content to become, in the ever-narrowing sense of the word, medical. It should never be forgotten that JENNER, KOCH, and LISTER were physicians. It will be a profound professional misfortune if future discoveries and progress in preventive medicine shall be made by non-medical men. Then will the future scientist ask, with all the more reason and justified scorn, "What progress, pray, is there to chronicle in medicine?" The genuine progress in medicine consists, indeed, in making medicine and therapeutics unnecessary. Those who have true pride in their profession will not willingly give up the work that rightfully, and by inheritance, has fallen to them, but while prompt to relieve the present evil and lessen bad results, they will also seek to prevent the coming evil, and to neutralize the causes whence flow the bad results. Sanitary science, bacteriology, and all those biologic studies that go to make up preventive medical science must, therefore, be integral parts of the curricula of every true medical school; the teachers of these branches should be physicians; the boards, National, State, or City, of public health, quarantine, etc., should at least have medical representatives, if not be entirely made up and governed by medical men. Throughout the land every physician should actively interest himself in whatever pertains to the health of the community, thus showing by word and deed that it is our proper function to prevent as well as to heal disease, and that the two things must be done by one person, and by one profession.

A NEW PROCEDURE IN MEDICAL TESTIMONY.

PHYSICIANS have unfortunately frequent opportunities to share, with other busy workers, the exasperations incident to attendance at court. To those not in the law, its dilatory and interrupted methods of business seem inexplicable and even disgusting, and it is not surprising, therefore, that efforts should be made to secure reforms, to which, however, the lawyers are too often opposed. Any progress is of interest, and it worthy of note that the State of New York has recently passed a law designed to convenience physicians and surgeons engaged in hospital duties. The act provides that in suits for damages for accidents to persons, medical witnesses who may have become cognizant of the facts in the course of their service in any hospital may give their testimony before a referee at a time and place to be arranged for each case, and such testimony may be read in court in lieu of the personal appearance of the witness. The trial judge is, however, empowered to order the attendance of the witness. The law applies, of course, to civil actions only. No State law could set aside the privilege guaranteed by the Constitution that a prisoner shall have compulsory process for his own witnesses, and must be confronted by the witnesses against him. The act also limits its operation to hospital cases; it does not extend to one who may see an injured person in the regular course of practice.

Information as to the circumstances that have brought about this somewhat marked departure from legal methods is not at hand, but it was possibly the result of corporation influence. It seems unlikely that a State Legislature, constituted like that of New York, would take such a step solely as a concession to the medical profession. The act will probably operate to the advantage of those corporations, such as steam and tramway lines, which are frequent defendants in suits for injury to persons. In such cases the testimony of the doctor first attending the injured person will usually be unfavorable to the company defendant, and anything that can diminish the vividness or directness of his testimony will inure to the disadvantage of the party by whom the witness is called. Now the interest that a hospital resident or consultant takes in an accident case is usually only as an incident of practice. He is not likely to feel obliged to make a sacrifice of his convenience to assist in securing a heavy verdict for the patient, and will, therefore, take advantage of the opportunity to avoid attendance at court. The defending company is generally wealthy and well equipped for legal battles; good medical talent will be secured by liberal fees, and the testimony in person by such witnesses will go far toward overcoming

the effect of a tedious list of questions and answers read to a jury. It is not improbable, therefore, that judges, recognizing the disadvantage to which the plaintiff is subjected, will send for the witness, at least in rebuttal, and the gain to the medical officer will be slight. On the other hand, the act may lead to the offer of considerable fees to the hospital officer, contingent upon getting them "out of Mr. Pickwick," so to speak, and thus extend the already too frequent practice in this respect.

As already noted, the act does not apply to general practitioners who may see a case in their daily routine. Why this restriction was made it is difficult to determine. In truth, the hospital resident will be probably least inconvenienced by the obligation to attend court. He can generally secure a substitute from among his colleagues, and can arrange to attend to much of his routine duty before or after the hours of court. His absence is in the line of his duty. His patients are almost always under the care of well-trained nurses. The general practitioner has no such advantages. The hours that he will be wasting in court are those that he usually devotes to visiting his patients, and many of these will be without competent attendance other than that which he affords them.

Experience is the only test of legislation, and it will be interesting to watch the effect of this new provision, regretting, however, that if a material departure in the status of the medical witness was to be made it was not in some direction in which relief is more urgent.

CONGENITAL MYOTONIA.

LEYDEN in 1874 first described an affection in which voluntary movement after a period of rest was followed by tonic contraction of the muscles brought into play, the spasm subsiding as the effort was persisted in. Two years later the disease was independently described by THOMSEN, an English physician, himself a victim of the disorder, and in whose family it had existed during five generations. The disease is quite rare, the number of recorded cases probably not exceeding half a hundred. The symptoms commonly appear early in life, sometimes soon after birth; not rarely more than one member of the same family suffers. The lower extremities are usually more profoundly involved than the upper, and the face, as a rule, escapes. The affected muscles in time undergo great increase in size, though they do not become proportionately powerful. The spasm is aggravated by attention and emotion. Sensibility and reflex action present no abnormality. Muscles and nerves exhibit a characteristic electric reaction: response and relaxation are both slow, while voltaic stimulation is followed by wave-like contractions passing from kathode to anode. Treatment has thus far been unavailing. In the absence of autopsies the precise nature of the disease has been uncertain, although examinations of excised portions of affected muscles have disclosed a condition of muscular hyperplasia. DEJERINE and SOTTAS (*Compt.-rend. hebdom. des Séances de la Soc. de Biol.*, No. 23, 1893, p. 669) make an interesting contribution to the subject of congenital myotonia, reporting the results of a careful post-mortem examination in the case of a man thirty-seven years old, who had been under observation for five years, and had presented characteristic symptoms from infancy, death occurring as the result of an attack of acute nephritis. The findings were entirely in accord with those of previous observations, but in addition careful examination failed to disclose a lesion of the central or of the peripheral nervous apparatus. The hyperplasia of the muscles was found to be due to changes in the primitive fibrillæ, and these were considered to be secondary to the increased functional activity, as they were not present in all of the muscles. Congenital myotonia will thus fall into the group of myopathies, together with pseudo-hypertrophic paralysis and its congeners.

EDITORIAL COMMENTS.

Cholera in Europe.—It is reported that cholera has appeared in Algeria—seventy or eighty cases—although the fact is denied by the official reports. At Marseilles, France, with from twelve to fifteen fatal cases daily, the British Consulate has ceased giving clean bills of health, and the French sanitary authorities have at last officially admitted the existence of sporadic cases. In the south of France generally the disease is spreading from town to town. A case of cholera has been reported in Piedmont, Italy, and several cases a day are reported from Naples, though denied by the authorities. In Arabia, Turkey in Asia, Russia, etc., the progress of the disease is slow but continuous. No new cases have occurred in England.

The Bad Physician and the Bad Musician.—There is something more than fancy, something more than sentiment, something even far more than analogy, hidden in

these facts: A good violinist, who knows and loves his instrument, will never allow a beginner or a bungler to play upon it. He knows that it will be all but spoiled in the hands of a bad player. By producing inharmonious vibrations in the wood the molecular structure is itself disturbed and confused. The longer, moreover, the attuning of the instrument by accurately harmonious vibrations, the more perfect the response of the wood, and the purer its tones. Just so it is with medicine, the therapeutic instrument, art, and artist. If we love medicine, we will not give the precious instrument to the bad and incapable, to damage irreparably its most intimate and ultimate structure.

The "Patent-medicine" Advertiser.—The American people should sell themselves body and soul to the nostrum-vender, or else combine to get some laws passed to curb his boundless greed and impudence. Go where one will, every barn, house, field, rock, or sign-board is turned into a blazing memento of our national disgrace, and of medical humbug. Pills, pills, pills! "The Gentleman's Friend," "Blood-regulators," "Pectorals," tonics, and heaven knows what else! Wherever the eye of child, girl, maid, man, or mother turns, there is the allusion, open or half-concealed, almost always filthy, to suggested disease. The images called up are those of pathologic conditions of the kidneys, of the genito-urinary organs, of the discharges from the bowels, of syphilis—of all the results of vicious, moral, or unphysiologic living. Is there no way to put a stop to such outrages against common decency?

Aluminum Drainage-Tubes.—*Apropos* of a brief comment in the NEWS of July 22, 1893, p. 107, an esteemed correspondent calls our attention to the fact that "aluminum drainage-tubes have been largely in use for several years. To my own knowledge for five or six years they have been made and kept in stock by the instrument-makers of Paris. They were first made by M. Collin, of that city, of three sizes of twenty centimeters in length, under the instructions of M. Lucas-Championnière, and are figured in the French catalogues of surgical instruments as 'Drains en aluminum du Championnière.'"

Purification of Water by Electricity.—It is reported that an "electric disinfectant" has been discovered by an electrician of New York, and, as a test, successfully applied to the purification of a large body of Croton water by Dr. Cyrus Edson. The details of the method are not given, but it is said that a powerful electric current passed through sea-water produces a fluid which has powerful antiseptic properties. This fluid in small quantities merely mixed with water containing nitrites, nitrates, and ammonium compounds, is said to dissipate these substances entirely.

The Word Practitioner.—We wish some professional etymologist would tell us the origin of the word *practitioner*, and publish the name of the lunatic who dared to coin such a barbarism. A man might be a practicer of medicine, but we do not understand how he could be a practitioner any more than one could be a musicianer or a mechanicianer. We have the words physician, doctor, etc.; why perpetuate the absurdity, practitioner? Let us drop it!

The New York Herald exposes another Bogus Medical College, passing under the name of "The Preparatory Medical College of New York." A certain Dr. W. M. Rew was the entire faculty and treasurer, and he sold a reporter a diploma for $20, after which he was arrested.

SOCIETY PROCEEDINGS.

AMERICAN OTOLOGICAL SOCIETY.

Twenty-sixth Annual Meeting, held at New London, Conn., July 18, 1893.

DR. GORHAM BACON, of New York, presided.

DR. LUCIEN HOWE, of Buffalo, N.Y., read the first paper, which was entitled "Note on the Comparative Anatomy of the Ossicles." Failing to find in various works on comparative anatomy adequate information in regard to the bonelets of the ear, an effort was made to obtain the ossicles from animals of widely different species. The view that the long process of the malleus is bony in early life, later degenerating into connective tissue and appearing as a ligament, seemed to be confirmed.

The view with regard to the malleo-incudal joint in the human being, that rotation in one direction is practically unlimited, while in the other direction it is suddenly arrested, was verified in the orang and some of the higher animals. It was found that the form of the hammer and anvil differs greatly, not only in different genera, but also in individuals of nearly allied families. On the other hand, the stapes is remarkable in having almost always a certain approach to the stirrup form.

DR. ALBERT H. BUCK, of New York, read a paper on the "Strongly Counter-irritant Effects of the Usual Mastoid Operation." It was pointed out that while the main object in opening into the mastoid process is the establishment of free drainage, in not a few cases the derivative and counter-irritant influence of the operation plays a most important part in effecting a cure.

In the majority of cases the disease will be cured without this additional counter-irritation, but in those cases in which the disease of the ear has set up more or less active intra-cranial inflammation, this counter-irritant power may be sufficient to turn the scale from a fatal to a favorable issue.

DR. HERMAN KNAPP, of New York, read a paper entitled "Extensive Caries and Necrosis of the Temporal Bone of a Child; Mastoid Operation; Death from Exhaustion and Hemorrhage."

The patient was a feeble, anemic child. For a few months there had been copious and offensive otorrhea of the left side. The mastoid region was swollen and soft, but no fluctuation was present. The mastoid was exposed, but there was no sub-periosteal collection of pus. The outer table of the mastoid was removed, exposing a large cavity filled with necrosed bone and granulations bathed in pus. This was removed and the cavity packed with corrosive-sublimate gauze. The child improved to some extent, but there was no tendency to repair. Some time later, and a week before death, the probe revealed that the

posterior wall of the bony portion of the external auditory canal had begun to loosen itself, but it was too firmly attached to permit of extraction. Careful probing of the ear was followed by the escape of dark blood. The wound was dressed and the child went home. During the night there was a continuance of the bleeding, and the child died on the following morning. It was impossible to obtain an autopsy. The amount of blood lost did not seem large enough to have caused death, but in the precarious condition of the child it may have hastened the fatal result.

DR. KNAPP further reported "A Case of Chronic Middle-ear Suppuration with Grave Brain and Lung Complications; Opening of Mastoid and Wounding of Lateral Sinus; Complete Recovery."

The patient was a woman, thirty-eight years old, who complained of pain, discharge and deafness in the left ear. For a year there had been occasional attacks of inflammation. The upper posterior part of the drum-membrane was red and bulging, and there was a large perforation in the lower part. There was also catarrhal rhinitis. Appropriate treatment was advised, and during the next three months the condition fluctuated considerably. On three occasions the condition became so aggravated that exploratory operation was decided on, but on each occasion sudden improvement occurred and operation was deferred. Finally, the disease took a more serious turn, with pain in the head and swelling and tenderness of the mastoid, and pain on percussion about two inches back of the ear. Operation on the mastoid was advised, but was delayed at the request of the patient on account of the advent of menstruation. The symptoms became more aggravated, although there was no discharge from the ear. When the mastoid was opened no pus or diseased bone was found. The bone was softer and more vascular the deeper the operation went. Chiselling still deeper, a sudden gush of dark blood took place, ceasing after a minute's pressure. The cavity was packed with corrosive-sublimate gauze. The ear showed no reaction, but for a week the patient was in a critical condition from a complicating pleuro-pneumonia. From the ninth day after the operation the patient improved steadily and made a complete recovery. It was thought that the attic disease was the origin of the difficulty, and that the inflammation extended into the skull through the roof of the drum-cavity.

DR. J. ORNE GREEN, of Boston, pointed out that the copious hemorrhage that sometimes takes place and is attributed to injury of the lateral sinus, may be due to the opening of a large diploic vein.

DR. T. Y. SUTPHEN, of Newark, N. J., reported "Autopsies in Two Cases of Complicated Middle-ear Disease." The first case was in a man, thirty years old, with a history of long-continued middle-ear suppuration, who presented an immense abscess involving the left mastoid region, which was opened. During the next few days the patient became worse, with the development of cough, elevated temperature and dulness on percussion over the right side of the chest, and in a week he died in coma.

The autopsy disclosed an abscess-canal outside of the dura mater, extending to the cerebellum, where it penetrated the dura and led to an abscess in the brain-tissue, adjacent to which were other spots of softened tissue. There were also the lesions of a septic pleuro-pneumonia.

The second case was one of right middle-ear inflammation lasting several weeks. For ten days there had been severe headache on the right side, but no swelling or tenderness over the mastoid and no paralysis. Three days later the patient became comatose, with a temperature of 104°. On the following day the mastoid was opened, but no pus was found. The patient died the next morning.

The autopsy showed no communication between the mastoid and the cranial cavity, although the meningeal space contained a quantity of sero-purulent fluid. The right lateral sinus contained a large, softened clot, communicating with the meningeal cavity. The entire meningeal surface of the cerebellum was bathed in pus. No abscess was found in the brain-substance.

DR. EMIL GRUENING, of New York, read a paper entitled "Fatal Thrombosis of the Lateral Sinus, with Autopsy." He reported the case of a woman, thirty-eight years old, who had had an occasional discharge from the left ear for six years, but for two months a profuse discharge. There were two perforations in the drum-membrane, and the mastoid region was red, swollen, and edematous. The ordinary mastoid operation was performed and pus and granulation-tissue found. The lateral sinus was exposed, but it did not pulsate. Four days later pyemic symptoms manifested themselves, with marked and sudden variations in temperature. There were also evidences of lobar pneumonia. The patient died, and the autopsy disclosed pneumonia and thrombosis of the lateral sinus.

Dr. CLARENCE J. BLAKE, of Boston, presented the statistics of the Aural Department of the Massachusetts Eye and Ear Infirmary for the three months, April, May, and June, 1893.

DR. J. ORNE GREEN, of Boston, exhibited a large number of pathologic specimens of ear-disease and gave reports of the cases.

DR. CLARENCE J. BLAKE, of Boston, read a paper on "Stapedectomy and other Middle-ear Operations." As the result of an investigation conducted during the past year as to the feasibility and advisability of extracting the stapes in chronic non-suppurative disease of the middle ear, it was concluded that in those cases of non-suppurative disease of the middle ear, with a high degree of deafness, the operation of stapedectomy is most likely to be futile, because of the degree of fixation of the base of the stapes, leading to fracture of the crura in the attempts at removal.

In the class of cases in which stapedectomy has apparently given the best results, viz., fixation of the stapes as a sequence of chronic suppurative disease, it is by no means certain that equally good results could not have been obtained by surgical mobilization and subsequent care.

While removal of the stapes is by no means so hazardous a procedure, it still opens up the possibility of interference to an unknown degree with the most important part of the organ of hearing, and an almost equally important peripheral organ of equilibrium.

In order that the operator might, in the non-suppurative cases, avail himself of the coöperation of the patient and apply in the progress of the operation a series of

hearing-tests to determine the location of the principal obstacle to sound-transmission and determine the extent to which surgical interference was advisable, the plan of "exploratory tympanotomy" was devised.

Dr. Blake expressed a preference, when possible, in cases of non-suppurative disease of the middle ear, to begin with exploratory tympanotomy, which can be performed without general anesthesia, leaving it to be determined by the examination and tests made during the operation as to whether the stapes can or shall be removed or not. In suppurative cases it is preferable to first perform synechtomy, tenotomy, and crural circumcision with, if necessary, the additional application of an artificial drum, allowing a proper time-limit for the determination of the effectiveness of these procedures before submitting the patient to the final operation of stapedectomy.

DR. FREDERICK L. JACK, of Boston, presented a communication entitled "Further Observations on Removal of the Stapes." He reported the employment of the procedure in thirty-two cases, in addition to the sixteen previously reported, with encouraging results. It was pointed out that the operation is followed by the best results in the class of cases in which, from the increase of tissue, the effects of suppuration or hypertrophic inflammation, the stapes offers an obstruction to sound-waves; by its removal the hearing is improved. The results in cases of otitis media chronica insidiosa, on account of failure to extract the foot-plate, are not encouraging. Inflammatory reaction is unusual, and is followed by no bad results. The hearing is not necessarily impaired by the subsequent growth of a thin cicatricial membrane over the fenestral niche. Some cases of tinnitus and aural vertigo are relieved, and there is little likelihood of causing permanent vertigo in cases in which this had not previously existed. It rarely happens that a patient improves for all tones. Improvement in hearing the human voice is out of proportion to the improvement for other sounds, and the reverse sometimes occurs. In some cases failure may be due to hemorrhage into the labyrinth at the time of the operation. This is believed to be a rare complication, but may have occurred in one or two cases. In removing the carious ossicles the stapes, if found diseased, should also be removed.

"DR. C. H. BURNETT, of Philadelphia, presented a paper on "The Surgical Treatment of So-called Ménière's Disease (Aural Vertigo)." He maintained that the name "Ménière's disease" is inaccurate and unjust —inaccurate because it is indiscriminately applied to all forms of aural vertigo, regardless of the seat of the otic lesion, whereas Ménière attempted to prove the existence of a disease of the semicircular canals as the only cause of aural vertigo, an entirely untenable hypothesis; and unjust because Flourens in 1822, and Deleau in 1836, described aural vertigo more accurately than Ménière in 1861, and Deleau came much nearer than any previous observer to the solution of the origin of aural vertigo in placing the cause in lesions of the middle ear.

Aural vertigo due to lesions in the middle ear is of frequent occurrence. It is often not recognized, especially by the general practitioner, as aural vertigo, nor even as the so-called Ménière's disease, in which, to say the least, the cause of the vertigo is placed in the auditory apparatus. It is not unusual for aural vertigo to be attributed to intestinal disturbance, or to "neurasthenia," instead of to an aural lesion. Hence, the diagnosis being erroneous at the outset, the treatment is wrong and the patients do not recover.

True aural vertigo, due to a lesion in the middle ear, chiefly from chronic catarrh of the tympanic cavity, is paroxysmal in character and attended with tinnitus and deafness in the affected ear. It is caused by the inward pressure exerted upon the labyrinthine fluid by the retracted and ankylosed ossicles. The foot-plate of the stapes is thus unduly pressed into the oval window, and there held by the forces named, paroxysmally and for longer or shorter periods.

The treatment consists in removing the retractive force and liberating the stapes, preferably by the surgical removal of the incus. The removal of the incus, which in its relation to the other two auditory ossicles, may be likened to a keystone in an arch, destroys the arch, and the retractive and impacting power of the malleus can never again be exerted upon the stapes. Thus the stapes is liberated and pulled outward by the stapedius muscle, relieved of the antagonism of the tensor tympani. The removal of the stapes from the oval window does not seem necessary for the relief of deafness or of aural vertigo. Liberation of the stapes and not its entire removal is all that is necessary in most cases.

DR. ROBERT BARCLAY, of St. Louis, read a paper entitled "On the Difficulty of Operation in the Depths of the Ear-canal; with Description and Drawings of New Instruments for Surmounting it." He stated that the difficulties attendant upon deep operations within the ear are in large part due to the peculiar conformation of existent instruments— specula and shafts of blades. To obviate the objections belonging to the ordinary aural specula, Dr. Barclay has designed a new speculum, which consists of two parts, a tube and a handle. The tube represents the inner portion of the ordinary speculum, divided obliquely at two-fifths its distance from the outer rim. The handle is detachable and is made in three forms: like a spoon-handle, fixed to the tube dipper-shaped; like an imperfect ring, or like a split tailor's-thimble. By means of the handle, the instrument is held in place by the finger or thumb, the rest of the hand being free. By dispensing with that portion of the speculum that projects beyond the intertragal notch of the ear, this instrument allows a hand-rest for steadiness, and a maximum of shortening and of movement of instruments in operations within the ear.

Dr. Barclay has also devised a shaft and handle so proportioned as to combine the desirable features of those already in use, without their defects. The essential features of the instrument are that the aluminum handle is of dimensions and weight most favorable to delicate and accurate manipulation; it is twice bent, the long axis of the handle passing directly through the operative extremity of the operating shaft. The lateral shaft joining the handle to the operating shaft is of length only sufficient to permit the greatest illumination and vision along and beyond the operating shaft. The operating shaft is of of the smallest dimensions possible and is at right angles to the lateral shaft. The instrument is made in two

forms. In one the handle and shaft are in one piece. In the other, the instrument is in two parts and separable, and interchangeable blades of such extremities as may be desired may be secured to the handle.

DR. SAMUEL THEOBALD, of Baltimore, read a paper entitled "Aural Reflex of Unusual Character Due to Impacted Cerumen." A woman, about forty-two years old, the mother of a large family, and not of a nervous temperament, had suffered for six months with an annoying cough and with attacks of inability to swallow food. These symptoms increased in severity, and it was noticed that any manipulation of the right ear brought on an attack. A plug of cerumen, which probably had been forced down upon the tympanic membrane by unsuccessful attempts to remove it, was discovered in the right ear. It was removed by syringing and all the unpleasant symptoms at once disappeared.

DR. B. ALEX. RANDALL, of Philadelphia, read a paper on "The Statistics of Ear-Disease."

DR. GORHAM BACON, of New York, exhibited a new form of incus-hook, devised by his assistant, Dr. Hewit.

A paper entitled "A Contribution to the Brain-surgery of Ear-Disease," by DR. THOMAS R. POOLEY, of New York, was read by title.

The following gentlemen were elected to membership: Dr. Edward B. Dench, of New York; Dr. William Cowen, of New York; Dr. John L. Adams, of New York; Dr. Edward Fridenberg, of New York; Dr. W. H. Wilmer, of Washington, D. C.

The officers elected for the ensuing year are: President, Dr. Gorham Bacon, of New York; Vice-President, Dr. Arthur Mathewson, of New York; Secretary and Treasurer, Dr. J. J. B. Vermyne, of New Bedford, Mass.

AMERICAN OPHTHALMOLOGICAL SOCIETY.

Twenty-ninth Annual Meeting, held July 19 and 20, 1893, at New London, Conn.

DR. GEORGE C. HARLAN, of Philadelphia, presided.

DR. CHARLES A. OLIVER, of Philadelphia, read a paper entitled "The Relation of the Patellar Tendon-reflex to some of the Ocular Reflexes found in General Paralysis of the Insane."

In some of the cases in the second stage of the disease, especially when the patellar tendon-reflexes were unequally exaggerated, there appeared to be an irregular and unequal spastic contraction of the two irides, causing irregularities in pin-point pupil-forms. In a few cases, especially in the third stage, in which the patellar tendon-reflexes were unequally diminished, the pupil-size, though small, and its shape, though somewhat irregular, seemed to be but little acted upon by any powerful mydriatic.

In many cases, especially in comparatively young subjects in the third stage, in which the patellar tendon-reflexes were unequally diminished, there appeared to be an unequal paralytic condition of the two irides; the pupillary dilatation manifesting itself at times, though not as a rule, in the eye with the greater amount of objective optic-nerve degeneration and retinal change.

In a few cases (especially in men beyond middle life) in the third stage in which the patellar reflexes were markedly diminished and ataxia was quite pronounced, there were marked temporary asymmetries of pupillary form, one often being quite small and irregular for several examinations, while its fellow was large and ovoid or oval.

In quite a number of cases, especially in the advanced stages of the disease (although seen in a number of cases in their earliest stages) in which the patellar tendon-reflexes were unequally exaggerated or diminished, there was a failure of the irides to respond to even major degrees of light-stimulus; this being true not only for those subjects exhibiting a true spastic myosis, but more especially in those instances in which, with partial dilatation of the pupil, mydriatics failed to act.

In many instances, especially in the older cases in which the patellar tendon-reflexes were, as a rule, unequally diminished or even lost, there was not only failure of iris-response to the strongest light-stimulus carefully thrown upon the retina, but when obtainable the irides seemed to fail to react to the various coarse and rough subjective and objective procedures necessary to evolve both separated and associated efforts for accommodation and associated efforts for convergence.

In some instances in which ciliary muscle innervation could be satisfactorily obtained, both the spastic excitation and the paralytic condition, at times found by subjective reading-tests and objective study with the retinoscope, seemed to be in direct ratio with the patellar tendon-reflexes and the iridic changes.

In quite a number of cases in which there was marked inequality of the pupils, with more or less want of reaction of the irides to light-stimulus, the patellar tendon-reflex on the side of the larger pupil seemed to be the more greatly diminished. In a number of instances, especially during the very earlist stages of the disease, when the patellar tendon-reflexes were beginning to lessen to unequal degrees, there often appeared momentary secondary ataxic dilatation of the pupil during exposure to strong light-stimulation.

In many cases, especially during the second stage, when the patellar tendon-reflexes began to become irregular and inconstant, pupillary inequalities, as expressive of unequal iris-innervation and action, became more and more constant.

DR. OLIVER also presented the "Clinical History of a Case of Spindle-celled Sarcoma of the Choroid, with a Study of the Microscopic Condition of the Growth."

The patient was a man, thirty-four years old, who five years before had suddenly noticed that objects situated to the right became dimmed when he attempted to look at them with the left eye. This condition gradually involved the whole field of vision, until in a little more than three years the eye became blind.

A tumor of the choroid was discovered after two years. There was a history of syphilis, but specific treatment had no effect upon the growth, and a diagnosis of sarcoma was made, and operation urged but not accepted. The growth attained a large size and became quite vascular. The eyeball was finally removed, perfect recovery ensuing. Microscopic examination showed the growth to be a spindle-celled sarcoma.

DR. EMIL GRUENING, of New York, read a paper on "Sarcoma of the Choroid." He reported the case of a woman, thirty years old, who, with impairment of sight in the right eye, presented a pushing forward of the

retina in the mascular region. Sarcoma was diagnosticated and the eye was removed. Examination showed the growth to be a spindle-celled sarcoma.

DR. GRUENING also read a paper on "Sarcoma of the Eyelid." He reported the case of a man, twenty-three years old, who for five years presented a swelling upon the lower lid of the right eye, which bled freely and irregularly. It was operated on, but soon recurred. The skin covering the mass was freely movable. A small portion was removed and found to be sarcomatous. The tumor, with the entire thickness of the lid, was then removed and the lid restored by a plastic operation.

DR. H. KNAPP reported two cases of traumatic sarcoma of the lid, both terminating fatally.

DR. GEORGE C. HARLAN, of Philadelphia, read a paper entitled "Tumor of the Iris, probably Tuberculous." He reported the case of a male child that, at the age of two and a half years, presented defective vision upon the right side, with photophobia and lachrymation. There was some conjunctivitis, but no chemosis. There was a small posterior synechia. A number of small, yellowish-white, rounded nodules were visible at the periphery of the iris. These increased rapidly in size, and additional ones formed. The deposit increased rapidly, and soon filled the upper outer third of the anterior chamber, and completely covered the pupil. Intense photophobia of the sound eye developed, and the diseased eye was enucleated. After the operation the condition of the child rapidly improved. Microscopic examination indicated that the lesion was probably tuberculous, although bacteriologic examinations yielded negative results.

DR. B. ALEXANDER RANDALL, of Philadelphia, read a paper entitled "Reflections upon a Disastrous Case of Ophthalmia Neonatorum." He pointed out that occasionally the most careful precautions may fail to prevent the disease or bring it to a successful termination. He referred to a case in which he could find no fault with the prophylactic or the therapeutic measures, yet both eyes were lost, and protested against too uncompromising claims as to the powers of medical measures, as such claims may be two-edged weapons that may be turned most seriously against their authors or other medical men who have really done all that human means could effect.

DR. B. L. MILLIKEN, of Cleveland, Ohio, detailed some "Clinical Notes on Some Refractive and Muscular Cases." Six cases were cited in which attempts were made to correct high degrees of astigmatism by the ordinary means, but without satisfactory results, while the ophthalmoscope furnished most excellent corrections.

Several cases were reported showing what could be accomplished with prisms in the correction of muscular insufficiencies, and the question was raised as to the advisability of wearing prisms at various angles for the purpose of correcting both a lateral and a vertical muscular insufficiency with the same glass. For instance, in a case of a lateral insufficiency of, say, ten, and a vertical insufficiency of ten, instead of making two prisms to correct, one at 90° and the other at 180°, place a 2° prism at 45° or 135°, right or left, as the case might be. The histories of several cases of this kind were given in which patients had worn the glasses thus with much benefit.

DR. SAMUEL THEOBALD, of Baltimore, reported "Several Cases in Which the Vertical Diplopia Test Proved Untrustworthy." Four cases were reported in which the cover-test showed a high grade of exophoria, both in distant and in near vision, but in which the vertical diplopia test failed entirely to demonstrate the presence of the condition, in some of the cases even indicating esophoria. In one of these cases, and also in a case of esophoria, it was found that when, during the application of the vertical diplopia test, the cover-test also was employed, a squint would show itself in the excluded eye, which the vertical prism failed to bring out, and which would disappear upon the removal of the cover, though the vertical diplopia was still maintained, showing that the latter had no controlling influence over the action of the lateral muscles. Cases in which the vertical diplopia test proves untrustworthy are comparatively rare.

DR. SAMUEL THEOBALD, of Baltimore, read a paper entitled "An Additional Note in Reference to the Case of Useful Vision Maintained by Means of a Totally Dislocated Lens," heretofore reported to the Society.

The feature of interest was that a fragment of the dislocated lens, the capsule of which had ruptured two years before, fell through the pupil into the anterior chamber, where it remained for six months, resisting the solvent and opacifying action of the fluids of the eye so completely as to retain its transparency and its sharply cut angles. It closely resembled a bit of yellowish glass, and might easily have been mistaken for a foreign body. As its presence in the anterior chamber began to cause considerable irritation, the pupil was dilated and it was caused to fall again into the vitreous chamber, its return to the anterior chamber being prevented by the employment of a myotic. This was followed by the disappearance of the irritation, which has not since returned. The insolubility of the lens-fragment is the more remarkable in view of the fact that the patient was but twenty-two years old at the time the lens-capsule ruptured.

DR. CHAS. A. OLIVER, of Philadelphia, presented a series of wools for the ready detection of "color-blindness." The following modifications had been made in the Holmgren series:

Five individual tests are employed—pure green, pure red, rose, pure blue, and pure yellow. Loose und separate skeins of wool are employed. The colors are made of equal relative intensity. The value of the color used in each test skein is definitely expressed. The set is so constructed as to be used by any intelligent layman; so that passing color-changes can be preserved and permanently kept for future comparison; and so that written and verbal expressions of the character and the amount of the subnormal color-perception can be given.

The wools are made of one grade of manufacture, and dyed with vegetable material.

After several years' trial it has been found that all but the five principal test skeins, five pure match skeins, and eighteen confusion skeins of relative equal value to the pure match skeins can be dispensed with.

DR. CHARLES STEDMAN BULL, of New York, read a paper on "Gouty Retinitis, Choro-retinitis, and Neuro-retinitis," based upon a study of the retinal changes found in over one hundred gouty patients. It was pointed out that the changes in the fundus are always

bilateral, though rarely symmetrical in the two eyes. The degeneration in the walls of the bloodvessels and in the retina cause marked impairment of central vision, little or no impairment of peripheral vision, and never end in blindness. The loss of central vision is always progressive up to a certain point, unless the cause of the disease is recognized early and immediately and properly handled. Improvement of vision after the disease is established cannot be expected. Hemorrhages into the retina are rare, except in the beginning of the disease. Their absence later is probably due to the fact that the strength of the vascular wall is increased by the deposit, though its elasticity is diminished. The most marked feature in the fundus is the development of the arterio-sclerosis and the phlebo-sclerosis. This is seen by the ophthalmoscope in the vessels of the retina, and the microscope shows that the degeneration exists as well in the vessels of the choroid and optic nerve.

Another almost equally pathognomonic symptom is the peculiar yellowish granular exudation in the retina, located by the ophthalmoscope around the posterior pole of the eye, and generally leaving the macula intact, and proved by the microscope to be mainly in the nerve-fiber layer, though found in all of the layers except that of the rods and cones. The changes in the optic-nerve fibers seem to be almost entirely intra-ocular, and cannot be traced for any great distance back of the eyeball.

DR. MYLES STANDISH, of Boston, read a paper on "Retinitis Punctata Albescens." It was stated that the majority of cases present themselves on account of some discomfort in the use of the eyes, and in the course of the examination the white, rounded, glistening spots are discovered in the retina. After a time the eye can again be used with comfort, but the spots do not disappear. The nature of the substance deposited is not known.

DR. LUCIEN HOWE, of Buffalo, presented a communication entitled "Removal of Hard Cataract by Suction." In order to obviate the difficulty occasionally experienced in completing the final act of extracting the lens, an instrument similar to a large dropping-tube is applied to the protruding lens, creating a partial vacuum, and thus exercising traction.

DR. FRANK W. RING, of New York, exhibited an ocular mask of papier-maché, to be used for the protection of the eye after cataract-operations.

DR. EDWARD JACKSON, of Philadelphia, read a paper on "The Artificial Ripening of Cataract." He reported a series of cases treated by tapping the anterior chamber, drawing off the aqueous humor, and massage of the lens through the cornea.

The operation was followed by very little reaction, there being no iritis or posterior synechiæ in any case. In patients over fifty years of age the operation was followed by rapid increase in the opacity of the lens and early maturity of the cataract. In patients under thirty-five years of age no effect upon the existing lens opacity was produced.

It was concluded that this method of ripening cataract is more efficient than that of Foerster (iridectomy and massage); that it is almost entirely free from danger; that it is probably a better means of avoiding prolonged practical blindness than the extraction of the immature cataract.

DR. HERMAN KNAPP, of New York, reported "A Case of Traumatic Dislocation of the Iris Under the Unbroken Conjunctiva; the Eye Damaged but Preserved; Typical Sympathetic Ophthalmia in the Other Eye."

A male, forty-five years old, was struck upon the left eye by the head of a small pet dog with which he was playing. The eye became discolored, but not painful. On the inner side of the cornea, and 2 mm. from its margin, the conjunctiva was raised by a black mass, which proved to be the iris. The conjunctiva showed no wound or scar. The whole iris was found absent from its normal position. The lens was in place and transparent. There was no neuro-retinitis or isolated rupture of the choroid. Vision equalled 15/200. The right eye was free from any irritation. The patient was directed to bandage the injured eye lightly, and not to use the other eye, and to keep quiet. Everything did well until twenty-nine days after the accident, when symptoms of sympathetic inflammation appeared in the right eye. Under active treatment the attack subsided, but relapses occurred, and vision in the right eye was completely lost. In the left eye vision equals 2/200, and the displaced iris has shrunken to a flat blackish mass, scarcely raised above the conjunctiva.

DR. E. E. HOLT, of Portland, Me., read a paper entitled "Removal of Steel from the Vitreous with the Electro-magnet." He reported three cases in addition to six previously reported. In all, the piece of steel had entered through the anterior chamber, fracturing the lens. The conjunctiva was separated and an incision made through the sclerotic behind the equator of the eye, the knife in each instance striking the foreign body. The electro-magnet was then introduced and the steel removed. The lens was subsequently absorbed and good vision obtained in every case, notwithstanding the fact that in the third case there was pus in the anterior chamber when the case came under observation.

A permanent magnet for use in removing foreign bodies from the cornea was described by DR. WALTER B. JOHNSON, of Paterson, N. J. It consists of a bar of steel, cone-pointed and elongated at each end. It is charged by rotating it within the magnetic field of a generator. It will continue in full magnetic strength for a long time. It has served an excellent purpose on several occasions in removing small particles of steel from the cornea which had perforated and almost entered the anterior chamber.

DR. WALTER B. JOHNSON, of Paterson, N. J., read a paper entitled "Suppression of the Visual Image." He reported the case of a man, nineteen years old, who had been cross-eyed since the age of three years, and has never been able to discern any object with the left eye. The right eye was hypermetropic. With the left eye fingers could be seen at six inches. As the result of an accident, enucleation of the right eye became necessary. In a few days fingers could be seen with the left eye at a distance of three feet; examination showed a hypermetropia of 1.50 D. With careful practice and instruction vision rapidly improved, in two weeks reaching 20/15 with a correcting glass and Jaeger No. 1 at twelve inches. Examination three years after the loss of the eye showed that the improvement had continued.

DR. GEORGE C. HARLAN, of Philadelphia, reported a "Case of Congenital Cyst of the Orbit with Anophthalmus

in a Well-developed and Healthy Child Five Months Old." The left eye and appendages were perfectly normal. A tumor about the size of a small hen's egg filled the right orbit and projected considerably beyond it. The orbit was as large as an adult's, and the lids were distended to more than twice their normal size. The skin was movable and of natural appearance. The cilia were well developed. The lids were separated about 2 cm. The exposed conjunctiva was congested, but otherwise not much changed. There was no discharge. There was nothing to mark the position of the cornea. There was no movement and no pulsation in the tumor, which was incompressible.

As the tumor was growing and the deformity great, removal was decided upon. Incision through the conjunctiva gave exit to a quantity of clear, watery fluid. The cyst was simple, the outer portion being fibrous and tough and the inner delicate, semi-transparent, and bluish.

The child died twenty-four hours after the operation, apparently from exhaustion following upon shock.

A careful inspection of the orbit after death showed that there was no communication with the intra-cranial cavity. Nothing resembling an eye could be found in the extirpated cyst, though at the bottom of the sac there was an undefined mass of tissue.

The tumor was thought to represent the embryonic tissues of the eye, in a condition of exaggerated hydrophthalmus, or a fetal encysted coloboma, which by its early inception and enormous growth had prevented the evolution of the eye.

DR. SAMUEL B. ST. JOHN, of Hartford, Conn., read a paper entitled "Restoration of the Upper Eyelid by Means of a Flap taken from the Cheek." He demonstrated a method applicable to cases in which the upper lid had been destroyed by disease or injury, or had been removed by operation. In making the flap, the incision commences about half an inch in front of the ear and runs forward below the lower lid about half an inch and continues until the side of the nose is reached. It is then carried downward until the flap is of sufficient width, then taken backward. The flap is next separated and secured by numerous stitches to the freshened surface above. The gap left is closed by separating the tissues of the cheek below the wound and sliding them upward.

Two cases were reported in which this plan had been employed with success.

The following were elected to membership:

Dr. F. E. Cheney, of Boston; Dr. J. E. Weeks, of New York; Dr. Charles H. Thomas, of Philadelphia; Dr. George Fiske, of Chicago; Dr. Wm. H. Wilmer, of Washington, D. C.; Dr. Edward Fridenberg, of New York; Dr. H. B. Chandler, of Boston; Dr. Wm. Cheatham, of Louisville.

The following were elected the officers for the ensuing year:

President, Dr. George C. Harlan, of Philadelphia; Vice-President, Dr. O. F. Wadsworth, of Boston; Secretary and Treasurer, Dr. Samuel B. St. John, of Hartford; Corresponding Secretary, Dr. J. S. Prout, of Brooklyn.

The Society adopted a by-law limiting the membership to one hundred and fifty.

NEWS ITEMS.

The State Medical Examining Board of Washington held its regular semi-annual meeting in Spokane, July 5, 1893. Thirty-one candidates were present and certificates were granted to eighteen, thirteen failing to obtain the required percentages. The Board decided to discontinue the practice of granting temporary licenses. This was considered necessary, as, in certain cases, unscrupulous persons obtained them and palmed them off as licenses issued after examination. The medical societies generally throughout the State also petitioned for their revocation. Hereafter a total average of 75 per cent. will be required of candidates. The next meeting will be held in Seattle the first Tuesday in January, 1894.

Section on Materia Medica and Pharmacology, Pan-American Medical Congress.—A Section on Materia Medica and Pharmacology has been organized under the Executive Presidency of Professor Joseph P. Remington, of Longport, N. J., with Professor F. G. Ryan, of Philadelphia, as English-speaking Secretary. This Section promises to be an important one. Delegates have been invited from all the pharmaceutic societies and colleges in all the Americas. Those contemplating attendance are invited to prepare papers on pharmaceutic topics, the titles of which should be sent at once to Professor Ryan.

Dr. J. Moore Campbell, a physician in active practice in the southern part of this city, died July 14, 1893, of enteric fever, in the forty-fourth year of his age. He was graduated from Jefferson Medical College in 1878, and was for several years chief clinical assistant in the department of gynecology of the College Hospital. Appropriate resolutions have been adopted by his graduating class organization.

The Vermont State Medical Society will hold its eightieth annual meeting at Rutland, October 12 and 13, 1893. Two prizes are offered for the first and second best papers on either "Peritonitis" or "Septicemia."

Pettenkoffer, of Munich, the distinguished hygienist, celebrated, on June 30th, the fiftieth anniversary of his graduation in medicine.

BOOKS AND PAMPHLETS RECEIVED.

Annual Address before the State Board of Health of Pennsylvania. By Samuel G. Dixon, M.D. Harrisburg: E. K. Meyers, State Printer, 1893.

Clinical Lectures on Abdominal Hernia. By William H. Bennett, F.R.C.S. London: Longmans, Green & Co., 1893.

Circular No. 34. Commonwealth of Pennsylvania. State Board of Health. The Treatment of the Apparently Drowned or Suffocated.

Circular No. 35. On the Prevention of Blindness.

Circular No. 36. Sanitary Protective Associations.

Circular No. 37. Emergency Hospitals.

Circular No. 38. On the Care of the Eyes. Dr. Benjamin Lee, Secretary, 1532 Pine Street, Philadelphia.

Twenty-first Annual Report of the City of Boston, for the Year 1892. Boston: Rockwell & Churchill, City Printers, 1893.

Acne, Comedo, and Acne Rosacea. By J. Abbott Cantrell, M.D. Reprinted from the College and Clinical Record, 1893.

The Diagnosis of Gastric Disorders. By Allen A. Jones, M.D. Reprinted from the Buffalo Medical and Surgical Journal, 1893.